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MILITARY AFFAIRS

No. 1612

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MILITARY-POLITICAL ISSUES

ARMY GEN V. PETROV'S VICTORY DAY ARTICLE

Moscow TRUD in Russian 9 May 81 p 1

[Article by Army Gen V. Petrov, commander in chief of ground forces, assistant minister of defense, USSR: "For Peace on Earth"]

[Text] There are many remarkable dates in the heroic history of our homeland which will forever live in the memory of the people. One of them is the All-Peoples' Victory Holiday which is noted along with us by all progressive mankind, by all for whom peace on the planet is dear. This year's 36th anniversary of the day of our victory in the Great Patriotic War has its own notable feature. It is observed in conditions of enormous political and labor enthusiasm caused by the historic resolutions of the 26th CPSU Congress.

Celebrating Victory Day, we remember the stern lessons of history. They demand from us an indefatigable revolutionary watchfulness and constant vigilance. Almost 40 years have passed since the time when a war, the harshest in the entire history of mankind, rained down on our land and on its peaceful cities and villages. Implementing their malicious plans, the Hitlerite invaders were sure of success. Their side had superiority in combat equipment, and they had at their disposal the industry, raw materials and resources of many countries, but the enemy severely miscalculated. The invasion of the Soviet Union, the first socialist state in the world, ended with the complete defeat of Hitlerite Germany. Our people were not only able to defend their honor, freedom and independence, but also contributed greatly to saving European and world civilization from the fascist barbarians.

The inspirer and organizer of the feat of arms and labor of the Soviet people was the Communist Party. Guided by the Leninist teaching on the protection of the socialist homeland, the party ideologically armed the Soviet people for the struggle with the enemy. By the end of the war, more than three million communists were at the front. Our party was a true fighting party. At its call, the country was transformed into a unified combat camp. The slogan "Everything for the front, everything for victory!" became an immutable law of life for the Soviet people.

Centuries may pass, but the exploits on the soldiers near Moscow and Leningrad, Sevastopol' and Stalingrad, near Kursk and on the Dnepr, in the fields of the Ukraine and Belorussia, in the Caucasus and in the Baltic region, on the Visla and the Danube, during the storming of Berlin and the liberation of Prague and in the hills of Manchuria will never fade.

The soldiers of the Czechoslovak peoples' army, Polish forces and the peoples' liberation army of Yugoslavia fought bravely shoulder to shoulder with Soviet soldiers against the common enemy. Bulgarian, Romanian and Hungarian units took an active part in the battles against the Hitlerite army in the final stage of the war. Many glorious pages were entered in the annals of the anti-fascist struggle by the members of the resistance movement. Formations and units of fraternal Mongolia and the peoples of China, Korea, Vietnam and other Asian countries waged brave combat against the Japanese invaders.

We also value, according to its merit, the contribution made to the common victory over the aggressor by the peoples and countries of the anti-Hitler coalition, the United States, England and France. However, it is common knowledge that the main weight of the struggle with the aggressor lay on the shoulders of the Soviet Union and its army. The then English Prime Minister, W. Churchill, recognized that it was "the Russian Army in fact who beat the spirit from the German Army." The U.S. Army Chief of Staff, Gen G. Marshall, citing the results of the war, in 1945 wrote: "Without the successful operations of the Soviet Army, the American forces would have been unable to withstand the aggressor, and the war would have been shifted to the American continent."

Our historical victory was natural. It was not the result of random circumstances as imperialist ideology tries to show but has fundamental social roots. Our victory was a triumph of the Soviet social and state structure, socialist economics and the moral and political unity of Soviet society. The ideologists, historians and propagandists of various colors who are hostile to socialism are undertaking ever growing efforts through juggling of facts and blatant lies to hide the truth about the feat of arms of the Soviet people from the younger generation. They strive with all their strength to minimize the role of the Soviet Union and its armed forces. But such attempts are in vain. It was precisely the armed forces of the USSR which completely or partially liberated the territories of 13 European and Asian countries with a population of approximately 200 million people. It was precisely the Soviet-German front which was the main one from the first to the last day of the war. Here, 607 fascist divisions were defeated and three-quarters of the total aircraft and a great part of the artillery and tanks were destroyed.

The reactionary forces did not draw the correct conclusions from the lessons of history. Blinded by the class hatred of socialism, they have followed a path for preparation of a new world war. Waving the "atomic club," imperialism began to hurriedly create a chain of numerous military blocs, bases and bridgeheads around the USSR and the young socialist states. In such a situation, the Communist Party, in spite of the difficulties of the post-war reconstruction, took the necessary steps to further strengthen the defensive capability of the country and to increase the combat might of its armed forces. Nuclear weapons and effective means for delivering them to the target were quickly built, which put an end to the attempts by militarism to conduct a policy of nuclear blackmail and threat towards the USSR. In May 1955 in response to the military preparations of imperialism and the founding of the aggressive bloc of NATO, the Soviet Union and other European socialist countries concluded a political and defensive union, the Warsaw Pact. For more than a quarter of a century, it has reliably ensured the security of the socialist community.

It is common knowledge that after the war the Soviet Union and the fraternal socialist countries have consistently conducted a policy of peace. The foreign policy course of the USSR, developed at party congresses, is aimed at supporting the rebuilding of the entire system of international relations on the principles of peaceful coexistence of states with different social structures. Thanks to the active and coordinated actions of socialist countries, as well as other peace-loving forces, an improvement in the international situation was achieved in the 1970's, marked by a trend towards detente. However, at the turn of the 1970's-1980's the international situation became noticeably more complex. The reactionary circles of imperialism, primarily American, have made fierce attacks upon detente. They are working up the arms race, inflating and provoking military conflicts and attempting to throw peace into the trenches of the "cold war." These circles, it was pointed out at the 26th CPSU Congress, "have indeed set a goal of achieving the unachievable, of placing a barrier on the path to the progressive changes in the world and of returning to themselves the role of determining the fate of peoples."

Today Washington strategists openly state that they are striving to achieve military superiority over the Soviet Union. The combat training of the U.S. Armed Forces is aimed at the conduct of military operations against our country. In this, the U.S. military-political concepts stress the creation of a so-called potential of "guaranteed destruction" and the infliction of a preventive strike by strategic forces against targets in the territory of the USSR and other European socialist countries. The next step which increases the danger of a nuclear missile conflict is the U.S. concept of a so-called "new nuclear strategy" and the decision by the NATO countries to deploy in Europe new American medium-range nuclear missile weapons systems aimed at the USSR and other socialist countries. In such a way Washington strives to shift the possibility of a retaliatory nuclear strike against it to its Western European partners in NATO. However, the calculations of the American strategists to sit out the war overseas, after having started it, are naturally, illusory.

It should also be stated that today the United States is attempting to expand the functions of the NATO bloc. Washington strategists would eagerly like to draw dozens of other states into their military training. Thus, the Persian Gulf region, located many thousands of kilometers from the United States and where major formations of combat forces are concentrated, has been arbitrarily declared by the American administration as a zone of their "vitally important interests." The United States is attempting to capture this important economic region in the noose of their aggressive strong points.

The Chinese leadership, following an anti-Soviet line, is stimulating the aggressiveness of imperialism and is attempting, together with militarist forces, to create a united battle front against the USSR. Beijing, counting on a war, actively supports the arms race and promotes a strengthening of the aggressive military-political blocs. China is undermining peace and is a threat to the security of neighboring countries and, primarily, to the Soviet Union.

In these conditions, the responsibility of the Soviet people and especially the personnel of our valiant armed forces grows for the protection of our homeland against any intrigues of an aggressor. The questions of the further development

and combat improvement of the Soviet Army and Navy, their technical equipping, training and personnel instruction and indoctrination occupies an important place in the activity of the Central Committee of the party and its Politburo. L. I. Brezhnev, general secretary of the CPSU, chairman of the Presidium of the Supreme Soviet of the USSR, chairman of the Defense Council of the USSR and marshal of the Soviet Union, gives constant attention to these questions. In recent years he has often visited training ranges, missile, tank and motorized rifle units and ships, including the Siberian, the Transbaykal and the Far East Military Districts and the Northern and Pacific Ocean Fleets. He was present at the inspection of forces taking part in the multi-day training exercise "Dnepr" and at the critique of the force maneuvers "Dvina" and in the force inspection in Minsk, the capital of the Belorussian SSR. He has spoken to the graduates of military academies and veterans of the Great Patriotic War and has traveled to the sites of past battles.

Even with all the colossal military equipment capabilities of our army and navy, their main power is comprised of people who have mastered the command of weapons and combat equipment. It is precisely these people who make up the basis of our armed forces and are a powerful combat monolith, a body unified in a socio-political regard and fused by the ideas of Marxism-Leninism, whose noble goal is the tireless service to their working people.

As Comrade L. I. Brezhnev noted at the 26th CPSU Congress, each time when in the interests of the security of the country and the defense of peace and when it is necessary to assist the victims of aggression, the Soviet soldier appears to the world as a disinterested and heroic patriot and internationalist, ready to overcome any difficulties. The present generation of the defenders of the fatherland is a worthy heir to the combat traditions of that heroic generation which defended the honor and independence of its fatherland on past battlefields and routed the aggressor.

The soldiers of the army, covered with legendary glory, vigilantly guard the gains of October and peace and creation.

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ARMED FORCES

PROTECTION OF STATE SECRETS STRESSED

Moscow SOVETSKIY VOIN in Russian No 10, May 81 (signed to press 26 Apr 81) pp 34-35

[Article by Boris Alekseyevich Viktorov, Lt Gen Justice (retired). "Vigilance Forever"]

[Text] At the request of our readers, we are beginning publication of talks of a military jurist. We are opening the new heading with the notes of V. A. Viktorov, lieutenant general justice (retired). Boris Alekseyevich Viktorov traveled a path from military investigator to assistant of the head military procurator. In animated examples, he shows the work of Soviet legal bodies in the protection of the national interests of our country.

In a report to the 26th CPSU Congress, L. I. Brezhnev, speaking of the heightened ideological struggle, stressed: "Recent events have once again confirmed: our class enemies learn from their defeats. They are continually refining their operations against the socialist countries." These words are also completely applicable to other spheres of the struggle which our class enemies are waging against the USSR and the entire socialist community. There are no means or methods which the imperialists would disdain to use to undermine our economic and defensive might. Espionage is one of the primary of these means.

By way of service activity I had to participate directly in investigations of cases against people accused of conducting espionage against the USSR and I participated in the consideration of these cases in the military tribunal or the military board of the Supreme Court of the USSR. Investigating the circumstances of a particular case, each time I was convinced of the invaluable assistance rendered by the Soviet people and primarily Soviet army soldiers in the unmasking of spies.

Here are several meetings with those who came to our country with evil intentions and were unmasked.

Often they pass themselves off as members of various delegations, tourists and salesmen. In fact these subjects are really not interested in the exchange of opinions on the questions of science, technology or art, the Moscow subway or white stone

cathedrals in the ancient Kremlin. Such "tourists" seek out any possibility of "getting lost" in the area of a defensive structure; and "having taken it" for an ancient monument, they take pictures of it. They are drawn to the outskirts of cities for the collection of tendentious information. Others among them try to foist anti-Soviet literature off on our people.

...A young, outwardly amiable man stands before a frontier guard. He speaks Russian well and is simply dressed. He has a light blue "Volga." Nothing about him gives him away as a foreigner. However, his documents state that he is a U.S. citizen, Mark Kaminsky, a resident of the state of Michigan. And he was furnished with the car by a foreign car rental company.

"I decided to travel a little," Kaminsky says, extending his entry documents. "I want to know your nature, your culture and way of life better. I am a Russian language teacher in a high school."

And the light blue "Volga" raced along the roads of our country. Vyborg, Leningrad, Kalinin were behind it...In each of these cities Kaminsky stayed two to three days, saw the sights, snapped his camera and wrote garish, interesting observations in a notebook.

Kaminsky also came to Moscow. Here he appealed to the appropriate Soviet organs: "Until 1942 my father lived in one of the western regions of Belorussia. Because of poverty, he and his family emigrated to the United States in search of a better life. Now he has instructed me, if possible, to visit his birthplace and bring back at least a handful of his native soil...Would it not be possible to change my travel route and fulfill my father's request?"

Kaminsky's request was understood and approved. And again the light blue "Volga" raced along our roads. Smolensk, Minsk, Molodechno...And then the village where Kaminsky's father once lived.

Cordially greeted by the collective farmers, the foreigner visited for a little and was again on his way. For a keepsake, he took a handful of soil and put it in a bag.

And then the final point of Kaminsky's tour of the USSR, the city of Uzhgorod. But before crossing the Soviet-Czechoslovak border, the light blue "Volga" dropped in to a restricted area...Kaminsky indistinctly explained to the one who happened to find him: "I wasn't paying attention to the road sign." But there were several warning signs here. Even the most absent-minded of drivers could not help but notice them. This attracted attention. It was discovered just what sort of "tourist" he was at the customs inspection before leaving the USSR.

The customs workers noticed a tightly bound bag in the side pocket of Kaminsky's jacket.

"What's here?" they asked him.

"Oh, I can show you..."

Taking the string with which the bag was tied with his teeth, Kaminsky tried to break it. A little more and the American "tourist" would have exposed the films located in the bag. But the experienced inspectors understood what was going on. They were able to cut off the attempt to expose the film.

They had to deal even more attentively with the inspection of the car. A cellophane package was extracted from under the seat. There were various plants in it: a piece of a fern with the roots, spruce branches and poplar and birch bark.

"Why have you collected these?" the inspector of quarantined agricultural plants asked the "tourist."

"My father is a herb lover," the "collector" answered. "He makes all sorts of medicinal brews from these plants. He asked me to collect them from his native land."

"Let us throw them away. Traces of mold have already appeared on them," the inspector proposed. "Gather the same kind of plants here in the area of the inspection and passage point."

"No," Kaminsky vacillated, "why here, they are not the same here."

This statement was entered in a report with the collaboration of witnesses. The material evidence was marked with Kaminsky's collaboration and delivered along with him to the inspector.

The first thing Kaminsky asked the inspector was if the KGB conducted investigations in the same way as in the time of Dzerzhinskiy.

"Exactly the same."

The spy's face paled. It turned out that the Russian language teacher Kaminsky, being a post graduate student at the University of Michigan, used white emigre literature to write an essay for his Russian language students about Dzerzhinskiy. It is easy to imagine how Feliks Edmundovich Dzerzhinskiy was portrayed.

And then I had my first meeting with Kaminsky. The inspector and I explained to him the legal procedures and the right of the accused for defense in the investigation process and in court. He may take part in the investigation of the material evidence taken from him. He reacted to our explanations, frankly speaking, with disbelief. He could not imagine that although he was caught red-handed as a spy that we would deal with him humanely and that the investigation would actually be conducted with the guarantee of his right for defense and with the desire to understand how and why he chose the path of perpetrating a grave crime against the Soviet state.

We showed Kaminsky the examination report showing the specific traces on the plants which indicated the nature of the production in the given region. We explained to him that under the existing laws, he had the right to meet with experts and to ask them any questions. But he did not display a desire to do so.

The film was developed. Among the harmless pictures, a number had a spy nature. These were pictures of transport structures, military camps and the like.

This case of unmasking a spy has not stopped new "travelers" from coming into our country.

Take for instance, the report of the Soviet Army officer Vol'nov. It states: "During the movement of combat equipment in the 'N' region, a foreign-made automobile with the license number V-NV-999 was noticed on the side of the road. The driver of the car, a young man, apparently a foreigner, furtively photographed the passing combat equipment. Noting our approach, the stranger quickly got behind the wheel and the vehicle rapidly disappeared."

But the spy was not able to hide. With the help of servicemen, he was detained by a school teacher, Victor Vladimirovich Shpakovskiy, in the area of the city of Kiev.

Spy-type objects were found with the detainee. Among them was a special body belt in which films were stored. There were many notes in a diary written in coded numbers and marks. Specialists decoded them. It turned out that the notes were military structures, communications lines and military units, the numbers were coordinates and the numbers of military vehicles and the other marks, troop trains, plants and factories.

The "tourist" reported the following about himself: he was Marvin William Makinen, born in 1939 and raised in Chyussel [perhaps: Chassell], Michigan. He was a U.S. citizen and a senior student at the Physics and Mathematics Department of the so-called Free University of West Berlin, where he was studying in accordance with a students' exchange agreement. He did not become a spy in the typical way.

"Once a fellow countryman called me and asked me to meet him," Makinen said. "The request was insistent and I agreed. Two Americans came to the meeting. One introduced himself as Jim and the other as Dayer. They said that they worked at a U.S. government military installation in West Berlin. They invited me to a restaurant as their guest. At the restaurant, they suggested that I take an automobile tour in the Soviet Union where, along the way, I must collect intelligence data. I was told that all the expenses related to the trip would be paid and that a good reward would await me upon the successful completion of the mission..."

Adolph and Herminie Werner, husband and wife, were residents of Karlsruhe, West Germany. It would be difficult to think anything bad about them. The honorable couple requested of us that they would like to see the beauties of the Crimea. In their personal "Volkswagen" the Werners took off through Austria, Hungary and Romania to the Soviet Union. At Constantza they loaded their car onto the Soviet steamship "Litva" and arrived in Yalta by sea. From here they began their overland journey through the Crimea and the Ukraine...

Several days later a statement arrived at the organs of state security. "We the undersigned," it reported, "are representatives of the command of a military unit,

Lt Col Petrov, Capt Sitnikov and Pvts Kolupayev and Kotlov, with the collaboration of Sr Lt Militia Vashchenko, senior inspector of road surveillance, have compiled this report about the fact that during the conduct of tactical training exercises on the Kiev to Khar'kov highway, unknown foreign citizens were photographing military equipment. When we detained them, they presented documents in the name of Mr and Mrs Werner, citizens of the FRG."

Secret writing instruments and a diary were found in the Werner's luggage upon examination. Between the lines of the conventional text in the diary, experts also made out the notes: "There is a radio tower in the...part of the city." "A radar installation at..." "I saw an airman at..."

In all the described instances, the unmasked spies for the foreign intelligence services were tried after a painstaking investigation and received just punishment.

To achieve their criminal goals, the agents of the imperialist intelligence services often attempt to rely on those citizens who have still not been freed of vestiges of bourgeois ideology and morals. It is appropriate to recall the affair of O. V. Pen'kovskiy [Penkovsky], which in its day was widely publicized in our press. Penkovsky, a former employee of the state committee for the coordination of scientific research works, through the businessman Greville Wynne, was recruited by English intelligence. The turncoat began to forward USSR state secrets to the West. Both spies were unmasked by Soviet organs of state security and sent to trial.

The military board of the Supreme Court of the USSR sentenced O. V. Penkovsky, a traitor to his homeland, to the highest form of punishment, execution by shooting. His request for a pardon was turned down and the sentence was carried out.

The English citizen and liaison spy, G. M. Wynne was sentenced to deprivation of freedom for a term of eight years, with the first three years being served in jail and the subsequent years, in a collective labor colony in austere conditions.

The ceaseless intrigues of the imperialist agents remind the Soviet people of the necessity of maintaining high revolutionary vigilance and of being unreconcilable towards gullibility, talkativeness and carelessness.

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AIR FORCES

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Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 48

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AIR FORCES

AIR FORCE MISSIONS: PROPAGANDA LEAFLET DISTRIBUTION

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 pp 4-5

[Article by Lt Col V. Pinchuk: "Stronger Than Shells"]

[Text] On 1 May 1918, the instructor pilot of the Moscow Air School, I. Vinogradov, took off from Khodyn Field and headed toward Moscow's Red Square where the first worker demonstration was being held after the victory of the revolution. Over the square, the airplane with a red propeller dropped leaflets which described the essence and tasks of Soviet power and contained holiday congratulations to the workers. V. I. Lenin watched this flight with pride and joy.

Lenin was interested in aviation at the very dawn of the air age. He repeatedly returned to the idea of the role of aviation and its use for carrying out the most diverse practical tasks. Precisely upon his initiative airplanes were first used in agitation and propaganda work.

From the first days of the victory of the Great October Socialist Revolution, upon personal orders of V. I. Lenin, the pilots began to sortie against the counterrevolutionary Krasnov troops. "On 28 October 1917, I received an order from the soldiers committee to fly to the region of Duderhof Hills," recalled the pilot I. Laponogov, "to drop leaflets over the positions of the Cossack troops. The leaflets which were signed by V. I. Lenin and the chairman of the Revolutionary Committee, N. I. Podvoyskiy, urged the Cossacks to come over to the side of the victorious workers and soldiers, their class brothers.

V. I. Lenin considered it essential to use every means for revolutionary agitation in Germany and which could influence the establishing of peace. It was a question of using aviation to inform the revolutionarily inclined masses in Germany of the Soviet proposals on the immediate conclusion of a peace.

From the very first months of the Civil War and foreign military intervention, airplanes were used for dropping agitation materials. The leaflets and appeals written in Russian, English and French explained the importance of the Great October Socialist Revolution, they unmasked the class essence of the armed anti-Soviet intervention, they disclosed the plunderous aims of imperialism and urged the soldiers to cease fighting against the Soviet people. Lenin personally was interested in their content and wrote some of them himself. Thus, over the signature of V. I. Lenin and the People's Commissar of Foreign Affairs, G. V. Chicherin, leaflets and appeals

were published in English with the titles: "Say Who Are You?", "Are You a Trade Union Member?", "Do You Understand What You Are Doing?" and others. The leaflets were dropped upon the personal instructions of V. I. Lenin.

"Lenin recommended the most effective method of distributing propaganda literature over the enemy trenches, by using aviation," recalled one of the leaders of the leaflet publishing. "When the text of the first proclamation to the English and American soldiers was printed and proposed for approval to Lenin, he said that it was essential to hurry and immediately find aviators, instruct them to make up a detachment and prepare the scattering equipment."

The question of agitation work among the enemy troops and the population living on enemy-occupied territory was examined in detail and a decision was soon taken which stipulated that each flight over enemy territory with bombs or for reconnaissance purposes should also be used for agitation by dropping literature. The great role of agitation was emphasized as a means which could cause the decomposition of the enemy army and a means for encouraging the proletariat in the occupied areas.

V. I. Lenin taught that agitation among the interventionist and White Guard Troops should accel in its content. While the propagandizing of proletarian solidarity among the workers of all nations under the slogan of "Hands Off Soviet Russia!" was the main thing in political work among the Entente soldiers, the class essence of the Civil War and the aims and tasks of Soviet power were explained to the White Guards and the antipopular plans of Kolchak, Denikin, Yudenich and Vrangeli were unmasked. The leaflets, as a rule, urged the soldiers to come over to the side of the Red Army which was defending the interests of the workers and peasants.

Here is an example. During the days of the heavy battles at Tsaritsyn leaflets were dropped over the enemy positions. They stated that the counterrevolution was doomed and they disclosed the true aims of its organizers. "Throw off the veil over your eyes!" they urged. "Come where you are summoned by your worker-peasant conscience! Come over to the side of the Red Troops!" The White Cossacks, having been convinced of the inadvisability of a war against their brothers, the workers and peasants, in turn threw up an appeal to the Red Army troops which was distributed on Soviet territory and published in the press. The appeal contained the words: "...Be bolder, for we are waiting for you and ask you to be bolder and drop more pamphlets from airplanes as there is great excitement in our troops...."

The extensive use of aviation for the purposes of disseminating agitation and propaganda literature in the enemy rear can be seen from the fact that from 16 August through 9 September 1918 alone, airplanes dropped over 150 kg of special literature.

Aircraft-aided agitation work was also carried out on the Western Front in the battles against landowner Poland. And here this was directly led by V. I. Lenin.

At the end of July 1920, by a decision of the RKP(b) [Russian Communist Party (Bolshevik)] Central Committee, a special Polish Revolutionary Committee was organized for directing party and agitation work over the Western Front and among the Polish population. It put out a "Manifesto to the Polish Working People of the Cities and Villages" which explained the aims and tasks of the Red Army which was entering Polish territory. On 3 August, Lenin sent in cipher over a direct wire the

following note to the Western Front Revolutionary Military Committee: "It is essential to take all measures to disseminate most widely the Manifesto of the Polish Revolutionary Committee in Poland. Use our aviation for this. Inform us what you have done."

The agitation and propaganda on the front were a strong weapon against imperialism. The truth of October became known to many simple people who had been forced to don a soldiers uniform. The active political work among the Polish legionnaires caused them often to cease fighting against the Russian workers and peasants. Instances of entire subunits going over to the side of the Soviet units were known. Thus, on 26 July 1920, the 29th Infantry Regiment of the Pilsudski Army abandoned its trenches and singing the "International" headed toward the Red Army positions.

The aircraft agitation flights were widely used also in the struggle against the Vrangeli troops. By this time the aviators had mastered the techniques of dropping leaflets. In following the instructions of V. I. Lenin, the commissars and party organizations of the air detachments established a procedure whereby each aircraft going out on reconnaissance took along agitation literature to be dropped in the enemy rear.

The political work among the White Guards and interventionists provided great help to the Red Army and helped to strengthen proletarian solidarity among the workers of various countries. "Our leaflets, appeals, bulletins, proclamations and newspapers," pointed out the Political Directorate of the Republic Revolutionary Military Council, "break the back of the enemy as often as a bayonette, bullet or shell. Agitation literature designed for the enemy is our communist heavy, long-range artillery which no capitalist army can resist." Young Soviet aviation also made a great contribution to this work.

During the years of the Great Patriotic War, airplanes were also widely used for political agitation.

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AIR FORCES

SELECTION AND TRAINING OF FLIGHT LEADERS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 pp 6-7

[Article by Military Pilot 1st Class, Lt Col Yu. Yemets: "Appointed Flight Leader"]

[Text] Having regrouped, the "enemy" rushed into the attack. From the observation tower one could clearly see how the extended lines of riflemen with the support of tanks and flank machine guns were advancing decisively on the battalion's positions. It seemed that just one rush and they would break the subunits' defenses.

Having assessed the situation, the commander radioed the code signal. In a few minutes, in drowning out the roar of the tanks, the skies were split by the thunder of aviation engines. Coming in at a low altitude, a flight of fighter bombers made a straight-in bombing strike against the "enemy" armor. Immediately several vehicles burst into flame on the battlefield. The attack petered out. And the fighter bombers, splitting off in pairs, attacked the targets with missiles.

Benefiting from the bewilderment of the advancing troops, the subunits went over to a counterattack. Under an air cover and cannon fire which neutralized the firing positions, the motorized rifle troops squeezed the "enemy" and forced it off the prevailing height. It is noteworthy that during the time spent over the battlefield the loudspeaker on the observation post tower only several times gave brief commands from the group leader. One could feel that in the air were pilots who understood the plan of the leader without words. The flight leader in carrying out the attacks gave the wingmen maximum freedom in maneuvering and making the attacks. Undoubtedly, in the existing situation the motorized rifle troops were successful due to the decisive and old actions of the fighter bombers which were able to correctly understand the dynamics of combined-arms combat and to provide them with air support in direct proximity of the ground subunits.

In modern combat the situation changes instantly and the outcome of air support depends largely upon how correctly the leader is able to anticipate the development of events, assess the capabilities of the group and select the place of the attack. In this regard the training of flight leaders in controlling a group in the air and in tactical terms is of very great significance. As a rule, promising senior pilots are appointed to the positions of flight leaders. In presenting the candidates, they consider the personal training of the aviators, their ability to command a two-plane element in the air, to correctly work with subordinates and their knowledge of the tactics of fighter bombers and the ground forces. The authority of an officer among the squadron personnel is also important.

From the moment of defining the prospects, the candidates fall, if it can be so put, into a special situation. The demands on them are much higher than before. For example, take just one aspect of the training, the piloting of an aircraft in a two-plane element. Let us assume that a senior pilot has a good sense of orientation in performing a complex maneuver and creates for the wingman speed, G-factor and engine thrust conditions for him to keep his place in formation. But in the not distant future he will be followed by three aircraft. Naturally, the leader should have a clear understanding of what difficulties the wingmen will experience in maintaining the parameters in various combat orders and must constantly adopt the experience of group leading among the best flight leaders. He has every opportunity for this particularly as each pilot, before becoming a commander, flies a great deal as a wingman.

Experienced instructors consider that piloting solo and a group has substantial particular features and for this reason in group flights using two-man trainers, they teach the leaders to execute vertical and horizontal figures using maximum engine power and partial afterburning as well as the correct reforming and control of the group in the air.

The flight leader himself prepares his subordinate pilots. For this reason his training as an instructor directly influences the advancement of subordinates through the combat improvement program. In this regard the desire of senior commanders to quickly teach young flight leaders to work from the instructor's seat is quite understandable. Usually for this courses are held which are organized by an order of the senior chief. But, we feel, along with the flight leaders the courses should also be attended by promising senior pilots. By the end of the training year they will be prepared as instructors for certain exercises and immediately after appointment can "lead" their subordinates.

For example, not so long ago, Capt L. Chernyavskiy and Yu. Oseled'ko became flight leaders. Prior to appointment to the position Capt Oseled'ko had been trained as an instructor during the day under visual and instrument flying conditions. Capt Chernyavskiy did not have such experience. In the courses, Oseled'ko, having recovered his instructor skills, continued to improve in more difficult types of training while Capt Chernyavskiy this time underwent an introductory program from the rear cockpit. Naturally, the process of his development as an instructor was extended. The senior commanders instructed the pilots of his flight under instrument flying conditions.

As practice shows, the development of the young flight leaders occurs more rapidly if, in parallel with the acquiring of professional skills, they learn pedagogical and procedural skills and the ability to create correct relationships in the collective and to focus subordinates on a creative search for unused reserves. They learn these qualities in the process of daily work in following the example of senior comrades. But at times it happens that the squadron command, in aiding a young flight leaders, watch over him excessively and actually assume his duties. This leads to dependence and a lack of initiative.

A flight leader must be systematically involved in drawing up the planning tables and in planning the training of his subordinates. This teaches him independence and the search for rational training procedures and develops a sense of responsibility for his every action and decision. For example, in conducting exercises we widely

use the flight method of preparing to carry out flight missions. This consists in having all the flight pilots participate in seeking out the most advantageous version for carrying out a specific mission after it has been received. Having discussed the subordinates' proposal, the commander chooses the most suitable. Of course, he has his own model for carrying out the assignment. He can say: "We will do it thus...." However, is this right? Thus, the Military Pilot 1st Class, Capt Yu. Oseled'ko, carefully listens to the opinion of his wingmen. He feels that the quality of carrying out the set mission will be higher if the subordinates not merely carry out the order but from the outset independently consider how to act under the given conditions and then after discussion reach an unanimous opinion. The plan for initiating combat elaborated on the ground becomes the basis for precise work in the air while other versions are kept in mind as alternatives.

In the preparations it is very important to select a rational battle formation which corresponds to the ammunition to be used and the operating mode of the sight systems. It must be confessed that there still are instances when the pilots, having modern equipment on the aircraft, do not use all of its capabilities. For this reason, the flight leader, in knowing the operated equipment perfectly, should convincingly explain the advantage of one or another operating mode of a sight under a specific situation. As practice shows, greater effectiveness in aerial gunnery training is achieved in those flights where the engineers and technicians take an active part in this work. In other words, in close contact with the specialists the pilots gain the necessary knowledge. Of course, for organizing such exercises it is essential to precisely allocate time, to consider the schedule of the specialist technicians and the place of holding the exercises and drills and coordinate all the organizational questions with the deputy squadron commander for the aircraft engineer service.

Experience does not come all at once and for this reason in our unit in appointing an officer to the position of flight leader, the senior chiefs carefully watch his development, they teach him to constantly rely in his work on the flight party organization and advise him where particular attention must be given in carrying out the flight training tasks. Time is not provided for hesitation, and for this reason immediately after assuming the position a young leader is plunged into intensive work. The success of the further combat training for the flight aviators depends upon how fully he has realized the responsibility placed on him and to what degree he has prepared himself to carry out commander duties.

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AIR FORCES

FLIGHT TRAINING OF YOUNG PILOTS DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 10

[Article by Military Pilot 1st Class, Lt Col A. Reshetnikov: "The Youth Matures in Formation"]

[Text] It seems that very recently Lts V. Polyakov, B. Artemov, G. Bogdanov and V. Bakhmutov arrived in our unit but how noticeably their skills have risen. The officers received the rating "Military Pilot 3d Class" and are successfully advancing through the training program under instrument flying conditions during the day and at night.

Our unit prepares ahead of time to meet the young men. The squadron in which the lieutenants are to serve is manned with the best educator-instructors, a program has been outlined for their improvement from the instructor's seat and confirmation of their class rating is envisaged beforehand. Beforehand we have compiled the sequence and order for the retraining of yesterday's graduates and have drawn up long-range schedules for the introductory flights and their shaping up. At the same time the training facilities have been prepared and procedural aids and recommendations have been worked out on mastering the systems of the new fighter bomber for them. The unit political section is concerned for housing for the officers with families and places have been allocated in a hotel for the bachelors. Everything was done so that from the very outset of service in the regiment the lieutenants would feel the paternal concern of the commanders and the friendly support of the collective.

In the first introductory flights, the instructor flies the two-man trainer. The instructor largely determines how the young pilot will respond to his new aircraft. He is simply obliged to show the student what the fighter bomber that he is to fly is capable of.

The lieutenants commenced the introductory program simultaneously but two or three shifts before the solo flights on a combat aircraft a group of leaders had been established. We had noticed that initially "medians" often become leaders. The stronger pilots gifted by nature may not be part of this group, however, in gradually picking up the pace in training after a certain time they move ahead.

But there are also officers of a different sort. For example, Lts Ye. Shilin, F. Galikeyev and V. Stavitskiy in coming in for a landing and in the glide felt unsure

of themselves. An analysis of the flights on the ground showed that they had promptly noticed deviations but had not corrected them in relying on the instructor. As a result there was a clumsy approach, an unsteady glide and a rough landing.

The flight leader did not immediately understand what the problem was. Subsequently he organized his work in such a manner so that the lieutenants could show greater independence both in ground preparations, in the air and in the landing. The instructor took over the controls only in extreme cases. The chosen method was correct and the result was not long in coming. The young pilots caught up with their comrades and advanced successfully through the program.

Practice shows that from the first flights it is important to encourage the initiative of the trainee in the air and to teach him to think and act independently. Enterprising pilots more successfully attain the fine points of flying and they more quickly develop the skills of controlling the combat aircraft.

As is known, the flight leader conducts the basic work with the youth. The success of training and indoctrination depends largely upon how fully he is prepared for this work and how thoroughly he has studied his subordinates, their strong and weak points. The young men follow the example of the commander. If a mentor is unable to create correct relations with subordinates then he inevitably has difficulties which ultimately tell on the professional training of the young pilots. Yesterday's school graduate stands at the beginning of his independent career. Without having sufficient experience in life, service or flying, with various difficulties he can become fearful. And it is precisely here that friendly support and a kind word from the commander are essential.

It happens that a young instructor, having been unable to establish contact with subordinates, asks himself: "Have I done everything so that they understand me?" This circumstance, as practice shows, must be considered in selecting the instructors to work with the youth. Let me give an example.

For the Military Pilot 1st Class, Capt N. Druzhinin, work with the lieutenants initially did not go well. His subordinates turned to him with various questions and the commander endeavored to answer them thoroughly, but felt that they did not always understand him. When Druzhinin shared his doubts with the squadron commander, he asked him:

"Do you always consider in talks the difference between your flight experience and the experience of subordinates, their knowledge, erudition and character traits?"

Here was something for the young flight leader to think about. In explaining flight elements which were difficult for the lieutenants but which for him had long become customary he omitted certain details. And precisely they were essential to the pilots. As is known the modern combat aircraft equipped with very complex systems require profound and thorough knowledge and a clear understanding of the processes going on. Without this it is difficult to achieve success in mastering the new equipment.

Capt Druzhinin improved his teaching methods, he constantly studied the individual features of his subordinates and took an interest in what they were interested in,

what they were reading and what they argued about in their time off. Gradually, almost unnoticed for himself, for the lieutenants he became not only a commander but also a senior comrade to whom they entrusted their most cherished dreams. At present Druzhinin is considered one of the best flight leaders and an experienced mentor of the youth.

A low altitude, to put it figuratively, is the "bread and butter" for the fighter pilots. However a pilot who has mastered the rudiments of piloting on the ground may feel that he has already attained expertise and this is dangerous. Complacency with a lack of experience is one of the reasons for recklessness. Our flight leaders know this and caution the young aviators against mistakes and teach them to precisely observe the flight rules. They feel that on a combat aircraft the pilot is alone in the air. Let us assume that he has carried out a bombing run with a grade of "excellent." But what overall grade should he be given if on the way to the range he has "strayed" in course, altitude and speed? For example, Capt Druzhinin reduces the grade for such a flight. And undoubtedly this is correct. In analyzing the executed mission, he convincingly shows what this could lead to in a real combat situation and lets the subordinates realize that the precise observance of flight parameters is essential under any conditions.

In the process of shaping up the young pilots, we devote great attention to their tactical training. The commanders teach the young to skillfully cross the "enemy" air defenses and to operate over a battlefield considering the specific situation. Excellent knowledge of tactical procedures gives the pilot indisputable advantages over the "enemy," and makes it possible under any conditions to quickly choose the only correct solution and make an accurate strike. Experience in working with the youth has shown that tactical training in parallel with developing the skills of piloting and the combat employment of a fighter bomber helps instill confidence in the combat pilots in operating over a battlefield.

As the young pilots develop, we involve them in various exercises. Of course, they carry out only those exercises for which they are ready. Here they do their best to justify this trust. During the exercise period each pilot feels a special psychological mood for the flight but this is even more apparent in young flyers. The newness of the situation and the large range of tasks to be carried out force them to take a serious attitude toward preparations, they discipline them and provide an opportunity to show creativity and initiative.

An exercise is a real school of combat mastery. In intense labor a combat pilot develops more rapidly. The youth mature in formation.

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AIR FORCES

LANDING WITH RETRACTED WHEEL DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 11

[Article by Lt Col M. Novikov: "Report Your Plan..."]

[Text] By an order of the district aviation commander, a commendation had been announced to Lt Col L. Stasyuk for precise actions in landing an aircraft under a difficult situation and the high professional skill, self-control and possession shown in this. He was awarded a valuable gift.

It was an ordinary flying day. The sun shown brightly and the sparse clouds floated slowly toward the horizon. The jet roar rolled in a wave from the take-off area toward the forest and the next fighter left on a mission.

The political worker, Lt Col L. Stasyuk, got out of the instructor's cockpit of the trainer, made comments to the pilot and went to the next aircraft. Sr Lt Yu. Artyukhov was to make a flight in a blacked-out cockpit. For him this was not an easy mission and for this reason the lieutenant colonel reminded the pilot again:

"Watch the instrument readings carefully and maintain the flight mode accurately. As if I were not in the cockpit..."

The officers took their places in the aircraft.

Tech-Lt A. Lagunovich helped them fasten their straps. The engine was started, the canopies closed and the aircraft taxied to the runway.

After take-off the two-man trainer began a turn into the zone. Beneath the wing a bit to the left was a river, beyond it a small town, a kolkhoz field and livestock complexes....

The instructor was satisfied with the actions of the senior lieutenant. Artyukhov maintained course, speed and altitude precisely, and responded promptly to deviations in the instrument readings. You could feel that the pilot had mastered the exercise well on the training equipment and had prepared thoroughly for the flight.

"Head toward the planned point," commanded the lieutenant colonel when Artyukhov had completed the mission.

The pilot precisely brought the aircraft to the calculated point and made a turn to the landing course. In level flight he reduced speed and then lowered the wheels. But suddenly the unforeseen happened as the indicator showed that the right wheel had not gone down. He reported this to the instructor.

"Try again."

Artyukhov glanced at the manometer. The pressure in the hydraulic system was normal. He raised the wheels and lowered them again. All in vain as the wheel descended only to an intermediate position.

"I am taking over," the lieutenant colonel cautioned the subordinate.

The situation necessitated immediate action.

"The right wheel has not dropped. Pressure in hydraulic system normal," radioed Stasyuk to the flight controller.

"Fly over the runway," came the reply.

The airplane made a circle over the airfield and then another. There was no doubt as everyone on the ground could see that the right wheel had not come down. Having gained altitude, the pilots endeavored to lower the wheel by creating a G-load but this did not help.

"Report remaining fuel and your plan," ordered the ground.

"Fuel..."

"We are endeavoring to lower the wheel. Land the aircraft and free the runway."

The trainer again passed over the field. Clearly the situation was critical. Each second there was less and less fuel in the tanks.

Below was the military camp. The school, stadium and housing. Somewhere there were the sons of Lt Col Stasyuk, Dimka and Deniska. The children had become accustomed to sending off and greeting their father on the flights.... "In the forward cockpit is Yuriy Artyukhov, a young man who is just beginning his independent life. Do I have the right to subject him to this risk?" thought Leonid Grigor'yevich [Stasyuk]. "Should we eject? No, we must seek a solution...."

The officer assessed the situation. The aircraft was obedient, the engine was working flawlessly and communications were continuous. "What else could be done?" wondered Lt Col Stasyuk. "Let us try to lower the wheels by hand...."

The indicator of the fuel gage crossed the mark of the emergency reserve. A signal light went on. The flight control officer had assembled the engineers. His voice could be heard from time to time in the headset. But what was being proposed from the ground was already being done. All attempts to lower the wheels were in vain. But the political worker did not give up hope. Again he examined and checked.

"How are things, Yura?" the instructor asked the young pilot over the aircraft intercom. "Have we done everything?"

"Everything, comrade lieutenant colonel" replied Artyukhov, "but to no avail..."

"Well, what do you think," the instructor said calmly. "Shall we land?"

"We shall, comrade commander!"

"Then prepare to release the brake parachute."

"We are coming in for a landing," heard the aviators listening carefully to the airfield loudspeakers on the ground. No one said a word as everyone knew the price of such a decision.

Lt Col Stasyuk put the aircraft into a descent. Sr Lt Artyukhov prepared to release the braking parachute.

The aircraft was descending to the ground. The outer and near beacons had been passed. The strip of concrete runway was coming ever-closer. The aircraft with its left and nose wheels down began to level out. Another instant and it neatly touched down. At the same instant the brake parachute opened like a white cloud. Losing speed, the trainer settled gently on its wing and stopped. The airfield breathed easier.

The pilots made their way out of the cockpits. Sweat poured down their faces in streams.

The engineers quickly established the reason for the failure. Due to a mistake by specialists of the maintenance unit a synchronizing valve had not operated.

When the malfunction had been corrected, Lt Col L. Stasyuk went up to the aircraft which again was back on the line. He touched the swept-back wing and felt the warmth of the aircraft as if it was thanking him for saving it.

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AIR FORCES

FIGHTER REGIMENT: TRAINING OF YOUNG PILOTS DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 14

[Article by Col I. Ivanov: "Their Wings are Strengthened in Flight"]

[Text] The roar of the jet turbines resounded over the airfield. Flights had commenced. Lts V. Tomarev and S. Borisov looked at the sky with concern. They were hoping that the weather would not let them down. And their concern was understandable as they were facing their exam exercises for a class rating. Just several months before they had arrived in the unit after completing school. And now they were taking their exam for combat maturity and skill.

The young officers had been met warmly and courteously by the close-knit regimental family. The party activists had told them about the glorious combat traditions of the youth. The young men had something to be proud of, an example to follow. During the war years, here there had been 21 Heroes of the Soviet Union and the thrice Hero of the Soviet Union, Mar Avn A. Pokryshkin.

The commanders acquainted the young officers with the socialist obligations assumed by the squadron in honor of the 26th CPSU Congress and they helped each man work out personal long-range plans for improving their ideological-theoretical level and professional skills. The lieutenants viewed as a battle order the mission confronting them of constantly improving piloting techniques for the supersonic fighter and preparing to pass the exam.

The shaping up of the young pilots and their training and indoctrination are a responsible matter. This question was discussed by the communists from the squadron under the command of Military Pilot 1st Class, Capt A. Mikhaylov, at a party meeting. Experienced pilots and technicians as well as young specialists participated in the conversation. A specific decision was taken.

Well respected, first-rate pilots and the able educators Capt V. Ustinov and V. Mikhaylik were appointed to train the young pilots. The communists were also concerned with improving the training facilities and the procedural studies for carrying out the missions in the air. Capt Tech Serv V. Derets, Sr Lt Tech Serv N. Kurgan and the master of military skills WO ["praporshchik"] V. Zaborskiy showed reasonable initiative. Following a plan approved by the commander, they reequipped the technical classroom and improved the stands, visual aids and the diagrams for the basic systems and assemblies of the fighter.

The lieutenants felt concern from the entire collective. And this, of course, inspired them, it compelled them to work at full strength and imposed great responsibility. The young pilots took an active part in the socialist competition. First of all they had to learn to use the hours of independent study with the greatest effectiveness. The flight leaders helped each man work out a personal development plan and described how to allocate their time so as to better assimilate the subject. In the course of the flights mistakes were thoroughly analyzed and successes commended.

Lieutenant V. Tomarev made an error in landing. This instance was the subject of thorough analysis. The flight leader along with his subordinates reproduced the pilot's sequence of actions and analyzed the allocation of his attention. For greater convincingness, the officers used the tape of the aircraft automatic flight parameter recorder. The conclusion was an objective one. Tomarev had landed the aircraft at an increased speed with a slightly raised nose wheel. At the moment of touch-down he pulled back on the controls. After the reasons for the error had been thoroughly studied, the flight leader provided detailed and specific recommendations to eliminate them. An additional flight on a two-man trainer was planned for the pilot. The instructor pilots worked scrupulously, attentively and considerately with the young aviators teaching them to fly confidently and boldly. The socialist competition was also directed at this. In the squadron its course is shown on special graphs and in the materials of visual agitation, the wall press and combat leaflets.

In the flights it has become a rule to make a daily summary, to note the leaders and immediately determine what help must be given the laggards. The development of the combat pilots is constantly in the view of the party organization which is headed by the flight leader, Military Pilot 1st Class, Capt V. Ustinov. Party bureau sessions have heard reports given by the communists, officers A. Mikhaylov, V. Mikhaylik and others. They shared their experience in the development of the young men, they told of the difficulties and made professional proposals to improve the quality of the training and indoctrination process. The party concern for the flight skills of the young officers helped them get their wings more rapidly. Lts V. Tomarev, S. Borisov and V. Yur'yev confidently mastered the theoretical disciplines, they passed their exams with grades of "good" and "excellent," and successfully carried out the introductory program.

Then arrived the day which they were so waiting for. The unit's veterans and the communist leaders wished the aviators well. The lieutenants listened carefully to the preflight instructions by the commander, they carefully accepted the trainers from the aircraft technicians, inspected them, checked the fuel and thoroughly went through the cockpit equipment.

The young flyers flew without flaw. The good flight preparations could be felt.

Soon an "express announcement" appeared in the control tower. It told that V. Tomarev and S. Borisov had received excellent grades for the check-out flight. The commanders and the members of the squadron party bureau hoped for them to constantly improve their flying skills. Sometime later the other lieutenants successfully passed the exam exercise.

At present the young flyers have taken their place on the line. They are devoting all their efforts to a further rise in combat skill, to surpassing the norms, to mastering the equipment and weapons and are fully determined during the year of the 26th CPSU Congress to attain new accomplishments in military service.

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AIR FORCES

BOMBER SQUADRON: COMBAT TRAINING PROCEDURES DESCRIBED

Moscow AVIAISIIYA I KOSMONAVTIKA in Russian No 4, 1981 p 15

[Article by Military Pilot 1st Class, Capt V. Burshtyn, Deputy Squadron Commander for Political Affairs: "A Firm Base"]

[Text] For a long time the squadron's aviators recalled the party meeting where they discussed the responsibility of the communists for flight safety. The reason for the serious discussion was a potential flight accident committed by one of the pilots. Such a case, naturally, could not help but alarm the command and party bureau of the subunit. The squadron commander, Military Pilot 1st Class, Maj V. Zubkov, immediately after the flights proposed that the party bureau secretary, the Military Navigator 1st Class, Capt V. Pletnev, speak with the communists on the reasons for what had occurred while the flight leader himself began to carefully study the monitoring materials.

It turns out that the pilot errors in the air leading to the potential accident lay not so much in her personal lack of discipline as in poor control over his flight preparations. These conclusions also were the basis of the report by Maj Zubkov at the squadron party meeting which was held soon after the summing up of the flights.

The communist officers V. Leverash, B. Gritsenko, R. Subakov, S. Barakov and others in their speeches in a principled and party manner focused attention of those present on shortcomings in the organization of preliminary and preflight training of both the flight and technical personnel and they proposed specific measures to eliminate them. Valid criticism was addressed at the party bureau.

"Draw conclusions," said the squadron commander to Capt Pletnev after the meeting. "Rely more on the communists for help."

Since then a great deal has changed in the subunit. Thus, while previously the command and party organization took effective measures only after someone had violated the flight regulations, now great preventive work is done here in the area of flight safety. The communists have established precise control over the quality with which the aviators carry out their duties and they actively aid the command in organizing flight preparations and carrying them out. The party bureau secretary, Capt Pletnev, along with the activists carefully thinks out the plan of party political measures for each flight shift. Then this plan is approved by the commander. In it an

important place is given to summing up the results of the communists in the flights and maintenance groups during the flight shift.

In preparing for the flights, the activists devote particular attention to organizing the socialist competition for the tasks and norms as well as to an extensive exchange of experience by the aviators who have excelled in carrying out the flight missions, in readying the aviation equipment and in the process of previous flight shifts.

Much useful advice and recommendations were found in the talks which Maj V. Gritsenko and Capts V. Smirnov and A. Avdeyev held with the pilots. The experienced combat pilots told how they prepared to carry out each element of the flight, how they acted in the air and allocated their attention. The party organization secretary V. Pletnev, shared his experience of navigation and the combat employment of a bomber under instrument flying conditions with other navigators. Officers V. Bilous and A. Filatov met with the specialists of the IAS [Aircraft Engineer Service], reminding them of the particular features of aircraft maintenance during various times of the day. Maj Yu. Osipov gave the flyers specific advice on conducting training drills in the aircraft cockpit.

The communists A. Revko, A. Loshovtsev and S. Polushov helped the members of the pedagogical council work out the reasons for possible failings of various instruments and the measures which must be undertaken in one or another instance. The studies were very useful for flight personnel, particularly for the young aviators who did not have sufficiently strong skills. This further increased the effectiveness of the training and indoctrinational process and the professional skills of the combat flyers.

It has become a firm practice for the party bureau to hear reports by communists on the example they set in observing the requirements of the instructions and flight regulations as well as in strengthening discipline and organization. Thus, at one of the sessions the comrades dealt strictly with Capt N. Romanyuk who had made an error in a take-off, as well as with the chief of the maintenance group, Capt Tech Serv G. Gudalevich who had lessened control over the work of his subordinates during flights. At the same time the party bureau members provided specific aid to individual aviators.

The leaders of the Marxist-Leninist study groups and political exercises also did not remain on the sidelines. Along with the teaching subjects, with their students they went through the questions of flight safety in lectures and seminars, they propagandized the experience of the pacesetters in the competition and criticized the lax.

The individual work carried out by the party activists is of great significance for eradicating accietns or potential ones. Capt Pletnev and the party bureau members have a good knowledge of the aviators and their capabilities and for this reason are ready to promptly provide effective aid to each and, if need be, deal strictly with violators. They endeavor to see to it that all the communists are profoundly aware of their role in flawless flight support, that they strictly carry out the demands of the leading documents and show organization and discipline.

In its daily activities the party bureau is guided by the requirements of the Decree of the CPSU Central Committee "On Further Improving Ideological and Political Indoc-trination." The party meetings and bureau sessions in a professional and principled manner discuss the measures of increasing the effectiveness of the socialist competi-tion, the example set by the communists in carrying out their party and service duties as well as the strengthening of their sociopolitical activeness.

In working for high awareness and responsibility of the aviators for improving a'r skills, the activists direct them at the systematic and purposeful acquiring of political knowledge and at thoroughly studying the materials and decisions of the 26th CPSU Congress.

Little time remains until the start of a difficult and intensive flight instruction period. In summing up the preliminary results and in making plans for the future, it can be noted with satisfaction that the squadron party organization provided great aid to the command in carrying out combat and political training and in in-creasing flight safety.

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AIR FORCES

IMPORTANCE OF GOOD FAMILY LIFE STRESSED

Introductory Comment

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 18

[Unattributed introductory comment: "A Strong Family is a Dependable Support for the Aviators"]

[Text] The editors of the journal AVIATSIYA I KOSMONAVTIKA have received replies to the article "A Shining Halo" (No 9, 1979) not only from servicemen but also from the members of their families who write about individual aspects of life influencing the discipline of flight service. Below we publish articles by the wife of a military pilot S. Vysotskaya and the chairwoman of the unit women's council G. Skuridina.

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Comment of Air Force Wife

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 18

[Article by S. Vysotskaya: "We Also are Crew Members"]

[Text] It was still night outside. My husband quickly and silently got his things together. The lock clicked quietly. His steps were dissipated in the dark. I could sleep no more. I got up and went to the window. The officers were coming out of the houses and collecting at the "spot" where they would be taken to the airfield. Seemingly there was nothing unusual in this as it was a flight day. One should be used to this but it is impossible.

"It is an ordinary job like any other," my husband often says. I realize that a pilot's profession is a complicated and responsible one involving certain risk. But, unfortunately, the wives know rather little about it. Husbands often do not say everything about their work particularly if it is a matter of some professional fine points.

But I would like to know more about flying in order to share the same interests with my husband and to experience together the difficulties and rejoice in the successes.

Articles in newspapers and magazines about pilots help make up this gap. For example, I was interested to read in the journal AVIATSIYA I KOSMONAVTIKA the materials on flight discipline. I must confess that initially this term was not very comprehensible to me. But gradually I began to understand its essence and significance. I anticipate the argument that it is scarcely up to a woman to speak about this. Initially I thought so too until I realized that mistakes in the actions of crew members can lead to tragic consequences. I understood the phrase: there are no minor details in aviation. Since all of this is directly related to flight safety, how could one be indifferent?

Involuntarily something else came to mind. Do we do everything so that our husbands leave for flights in a good mood? Certainly, as I realize, this is very important. Moreover, having become wives of military pilots, have we not volunteered, if it can be so said, for their combat crews? Hence, things do depend on us.

As is known, it is not easy to be the wife of a military pilot. The road from the doors of the civil registry to the vehicles of the wedding cortege is just the happy and joyful beginning of life together. But the main thing is to what degree in the future the wife is able, along with her husband, to overcome all the abrupt changes which are encountered on the road of life. Obviously it is very important from the outset to realize that a man who has dedicated his life to military aviation does not fully belong to himself. All his thoughts, his spiritual and physical forces are subordinate to carrying out military duty. Then how can one be indifferent to the mood in which a husband leaves for flights?

In life there are joys and disappointments. It is hard to believe that a woman would wish anything bad for the person dear to her. Nevertheless it does sometimes happen that before the husband's departure for flying sharp and insulting words may be said to him in the ardor of a dispute. But later she listens with concern to the roar of the aircraft engines and waits with grief in her heart. But what about him? Is it worth creating nervousness or raising tension at home, particularly on days when service requires a great straining of moral and physical forces from the husband? It seems to me that a woman who understands well what enormous strength is contained in her words and conduct before saying or doing something should weigh everything well and give some thought to how this will be perceived by the husband.

If I were asked what qualities I considered important in the character of a pilot's wife I would reply: patience, the ability to control oneself and to manage one's emotions and outbursts. Without them, it seems to me, it is very difficult to create a calm, friendly atmosphere in the family.

Are not domestic difficulties sometimes an indirect cause of mistakes made by a pilot in the air? The journal has written a good deal about the psychological aspects of flight activities. The success of a flight, as the authors assert, depends largely upon the spiritual equilibrium of the crew members and their working mood which is formed not only by prevlight training but also at home. Consequently, in speaking in military language, a definite discipline of relationships should also exist in the family, that is, the subordination of them to a set order, to the main thing in the life of the family, the husband's service. Possibly my words may seem too categorical. But if we look closely at the life of strong and happy families we will inevitably see a high level of relationships.

The relations of my parents have always been and will always be an example for me. My father served in the long-range aviation and was frequently gone for long periods. My mother was always concerned for him but did not show it. The house was always in exemplary order. My sister and I helped her as much as we could and were always amazed how much she succeeded in doing. Father's flights were always something major and unusually important for us. In the family everything was subordinate to them.

I will never forget the day when my father returned from flying very upset about something. We were preparing dumplings in the kitchen. I saw my mother's face turn pale. But nothing else gave away her concern. Only later did my father say tersely:

"An emergency landing. A navigator was hurt."

And not a word more.

My father was very upset with what had happened and often did not sleep at night. Mother calmed him as she could. But the best effect on father was her self-control, the domestic coziness and the cordial warmth of the family situation.

When I grew older I realized what a sensitive and attentive person my mother was. She always knew how to tell my father the very words needed at the given moment, to encourage him and cheer him up. My father also was able to leave everything bad outside and came home in a good mood. As far as I recall, my parents never spoke about my father's work if this was unpleasant for him.

The family of the Military Pilot 1st Class, Capt Yu. Buslayev lives in our garrison. In his home an atmosphere of mutual understanding, benevolence and confidence reign. And this is largely the accomplishment of Tat'yana Buslayeva. In many ways I would like to be like her. She is always a calm, self-possessed and pleasant woman. It seems to me that she is very happy. Is this not a reward for her humanity? Tat'yana never discusses either her husband or others with anyone. In my view, this is also a very good quality in a woman, wife and mother.

I am proud of the fact that my husband is a pilot. In my understanding aviators are strong, decisive, self-possessed and creative persons who are totally dedicated to their profession and motherland. I find confirmation of this in daily contact with military pilots who are comrades of my husband. For them the main thing in life is flying. This is their duty. It is a high and great honor to help them carry this out as well as possible.

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Comments of Chairlady of Women's Council

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 19

[Article by G. Skuridina: "For the Sake of the Main Thing"]

[Text] It can frequently be heard that family relations and its inner workings are a strictly private matter. Yes, this is largely the case but not always. Let us

imagine that a crew member or another specialist involved in readying an aircraft for flying has left for service in a bad mood. Obviously it would be difficult to expect from him complete dedication in performing his duties. Like it or not he returns mentally to domestic matters. Consequently, there can be possible errors and oversights which can tell on work quality. Hence a normal atmosphere in aviator families is far from a personal matter.

As is known, the women's council works under the leadership of the unit political section. Its main concern is to organize normal life and leisure for the servicemen, to help in finding jobs for family members and to aid in creating good, benevolent relationships. This is done, as a rule, delicately, without pressure and only in those instances when such aid is required.

Tamara Grigor'yevna Vaysman has worked 4 years in our women's council. A pedagogue by education and calling, she quickly finds the key to the hearts of people. At one time in a family a daughter had been sick for a long time and had missed many lessons in school. Tamara Grigor'yevna offered her help to the parents and worked regularly with the girl. After things were going well with the lessons, she visited the school and was interested in the girl's grades. She herself has two children to whom she devotes a great deal of attention and concern. But Tamara Grigor'yevna has the energy and time for everything. Relations in the Vaysman family are based on sincere respect, sensitivity and courtesy. Gennadiy Ios'fovich, a detachment commander, flies a great deal. But even after difficult flights he finds time to help his wife in social work.

To be able to share with a husband the difficulties of his service is far from easy and at times requires a good deal of courage and tenacity. But the strength of feelings, their profoundness and force are tested precisely in this. With good reason the wives of servicemen are called combat friends. And this proud title imposes many obligations.

I have long been acquainted with the Kozlovskiy family. I am amazed at the energy of Lyudmila Grigor'yevna. Wherever has she not been with her husband! For a long time they lived in the Far East and often changed garrisons. As Vladislav Sergeevich says, he never heard a word of complaint from his wife. Everything in the family was subordinate to the order imposed by the homemaker for Slava was to fly and that was the main thing....

Unexpectedly misfortune struck as their son was hit by a car. For nights Lyudmila Grigor'yevna remained by the hospital bed. During the day there was work and household chores. There were more than enough difficulties. But as before she tried not to burden her husband with excessive concerns. He had to fly. She looked after the son.

One can only be amazed at the great energy, will power and love of life of this woman, her responsiveness, generosity and cordial kindness. She meets any setbacks in life steadfastly.

But there are examples of another sort.

I remember talking with a young woman. She had recently married a pilot from our unit. The large attractive eyes with coquettishly curled lashes looked demandingly.

"Why should I wait? My husband is a pilot. He should have it. Temporary difficulties? What are they to me? You have an apartment and I need one. If we don't get one I will leave my husband...."

We spoke for a long time. I admit it was not easy. Together with the chief of the political section we persuaded the woman not to do anything rash. Although this was a single instance it is worth remembering. At times one is disconcerted by a certain demanding note in young people: provide it immediately. Are not we, the older generation, to blame for this? Of course, we would like the children to live better. But this at times does harm to their moral indoctrination. Unfortunately, our housing problem has not been fully solved. And here there must be not only understanding but also patience.

In speaking about morality, in my view, we must not overlook the nature of contacts between young people. I have in mind the talks of women on subjects relating to their husbands' service affairs. Often they are far from polite. For example, it is sad to hear how service moves are discussed. I would probably not be wrong if I said that a service promotion for an officer is important to his relatives. However, do we have the right to speak about things where we are not competent. Such talks at times spoil normal, sincere relations between families and have a negative effect on the strengthening of military comradeship.

At one time I read an article in a magazine on flight discipline. It gave an example when a pilot left for a flight not in a flight jacket but rather in a tunic. In landing the sleeve became caught on one of the aircraft controls. A difficult situation developed.

It could not be excluded that prior to the flight the pilot had been somehow greatly upset and had forgotten to be properly dressed. Or perhaps the reason is one of slovenliness? When you see an officer in unpressed trousers, dirty boots or when you notice faded, crushed shoulder boards it is an insult to the aviation uniform. Certainly it must be worn proudly and with dignity. Here I feel our attention, help and at times understanding are also needed.

In aviation, as is known, there are no minor details. Nor should they be in a family.

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AIR FORCES

FIGHTER SQUADRON COMBAT TRAINING PROCEDURES

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 p 26

[Article by Lt Col A. Guk: "That Is How It Must Be"]

[Text] Lt Col V. Nurmukhametov entered the classroom. Here everything was familiar. The working electronic stands, the models, diagrams and graphs.... He had taken a most active part in designing the auditorium and working out the teaching aids and along with the rationalizers and executors had discussed long and thoroughly each detail. The squadron commander saw to it that the aids brought a maximum benefit in training the combat pilots and that the classrooms met the modern requirements.

"Now another commander will be here," thought Nurmukhametov with some sadness. And then an unexpected thought: had he not been in a hurry to agree? He recalled a recent conversation with the regimental commander.

"I understand," said the colonel. "It is not easy to bid farewell to a collective to which you have devoted your soul and heart. But that is how it must be...."

Must! In the mouth of the senior chief this word always has a weighty ring, particularly if it is backed up by convincing arguments. And it was essential to take over a different squadron where the commander was leaving for the academy.

"I do not see any more suitable candidate," continued the regimental commander. "In this subunit there are many young men and you know how to work with them. I am confident that you will train real fighters."

Nurmukhametov knew many of his new subordinates well as he had conducted air combat with them, executed interceptions and other missions in daily training and had participated jointly in daily training and had participated jointly in various exercises. But the lieutenants who had just arrived from schools would be impatient to fly. From experience Nurmukhametov knew that this period was the most crucial. And not only from the viewpoint of theoretical training but also psychologically. It was essential to instill in the conscience of the young men the necessity of earnest and productive work on the ground and to teach them to prepare independently for the forthcoming flight missions. And this was not always easy.

Once, after preliminary preparations, the squadron commander asked to see the notebooks of the pilots. Lts V. Ryabtsev and S. Lugin had been doodling in their notebooks. After a few test questions it became clear that they were not ready for flights. The attention of the flight leaders had to be drawn to monitoring the independent study of the pilots. Then the squadron commander spoke with the young aviators and using vivid and convincing examples showed to what negligence could lead. The lieutenants understood their mistake. Neither the flight leaders nor Lt Col Nurmukhametov saw such entries in the notebooks. Soon both officers had straightened out and had become more serious and self-possessed. Training was more lively and effective.

In the first flights Ryabtsev and Lugin showed good training. They quickly picked up on everything that the instructors showed them and acted confidently and calmly in the air. But Lt A. Molchanov found it difficult to execute an instrument approach as he did not maintain the descent mode. When the instructor reported this to the squadron commander, he decided himself to study with the officer. For a start he flew with him in the zone and carefully monitored Molchanov's actions in the take-off, glide, descent and landing. The reason for the mistake was in the incorrect allocation of attention. The pilot had been able to prepare for the shift from visual flight to an instrument one and for this reason was excessively nervous and tense.

Having spoken thoroughly with the flight leader, Capt A. Ivanov, Lt Col V. Nurmukhametov also discovered mistakes by the instructor. He had not quite correctly employed demonstration which is the main teaching method in pilot instruction.

Additional exercises were planned for the flight leader and his subordinates. Ivanov's basic attention was drawn to improving pedagogical skills and Molchanov's to exercises in the aircraft cockpit and on the trainer. Lt Col Nurmukhametov organized his work in such a manner as to devote more attention to the flight leader and young pilot. Soon thereafter in an inspection flight he was convinced that Molchanov could fly intelligently and confidently.

Once in an analysis a flight control officer noticed that Molchanov landed an aircraft better than his fellow servicemen. This was praise not only for the young pilot but also for the commanders training him.

On the flight day, a group of experienced pilots headed by the squadron commander was to work on attacking ground targets at the range. As always, they had carefully worked out the mission on the ground, the maneuvering in the air defense zone, the procedure for crossing it and reaching the target area had been calculated to the second. A final check on their readiness and the aircraft were in the air. In maneuvering energetically they crossed the "front line." According to the calculation the zone of the "enemy" antiaircraft weapons was approaching. Another maneuver. The umpire was silent. Hence everything was in order. But then there was the edge of the forest with the characteristic configuration which the pilots had seen on the aerial photographs. In turning the leader spotted the missile unit.

The flight control officer at the range gave his permission to proceed. A rapid attack and the projectiles headed toward the target. The group headed back to the airfield. The average number of points in carrying out the mission was high.

However, the squadron commander was not completely pleased. There were reasons for this. He himself and the chief of staff, Lt Col V. Sosnovtsev, had made a direct hit on the target while Capt A. Bilyachenko had scarcely kept in the norm. Several other officers had carried out the exercise below the level of their preparation.

"What is the matter?" thought the commander. "The conditions for firing are the same, the weapons and sights are analogous. The theoretical preparation of the pilots is beyond doubt."

The squadron commander shared his thoughts with the chairman of the pedagogical council, Lt Col P. Simenko. The officers reached an unanimous opinion. Since the aircraft sight is multipurpose, it is essential to determine what mode it was being used in by each pilot in firing at the ground targets.

Nurmukhametov organized an exchange of experience in the squadron. They collectively analyzed all the possible variations of using the sight and chose one, the most effective. The procedural council adopted these recommendations and the regimental commander approved them. After this special exercises were held. The result was not long in coming. For burst firing from the cannon and for bombing all the pilots received high grades. Soon thereafter the squadron won the title of outstanding for the results of the socialist competition in honor of the 26th CPSU Congress.

...Flights were underway. In the tower of the flight command post a business-like atmosphere reigned as from the loudspeakers came the voices of the pilots carrying out the planned exercises. On the desk of the flight control officer, Lt Col Nurmukhametov, there was a planning table and log where he ordinarily made comments.

Through the wide windows you could see the airfield and the skies scattered with inversion trails. The next pair of fighters took off and quickly disappeared from view. A little time later and from the loudspeaker came the voice of the leader:

"This is 435, we are in the zone. Permission to execute mission."

"Permission granted," replied the flight control officer looking at the indicator screen.

The blip split. Lt Col Nurmukhametov in his mind imagined the fighter cockpit and involuntarily gripped the microphone tighter. Today the pilots were to work on air combat using horizontal and vertical maneuvers. Of course the leader had more experience. But the young pilot was no longer a novice. He had learned a great deal and boldly entered training combat with his instructor. Under his control was a powerful aircraft which the commanders had taught him, like other young officers, to fly perfectly. They had taught love for their profession and had given them the great science of winning. This is the meaning of the life of Lt Col V. Nurmukhametov, a commander, teacher and mentor.

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AIR FORCES

PSYCHOLOGICAL TRAINING OF FLIGHT SERVICE PERSONNEL

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 pp 34-35

[Article by Guards Engr-Maj A. Kamayev, deputy regimental commander for the Aviation Engineering Service: "Tuned for the Flights"]

[Text] Prior to the beginning of preflight preparations, the deputy squadron commander for the aviation engineering service [IAS], Guards Maj Tech Serv N. Litvinov, reminded the technicians and mechanics of the particular features of the forthcoming night shift and the basic safety procedures in servicing the supersonic aircraft. The officer read the weather summary.

"As you can see," he said, "it is expected to cool off at night. For this reason I request the chiefs of the groups and the TECH [maintenance unit] of the flights to pay particular attention to the equipping of subordinates and to take the necessary measures to exclude cases of frostbite and the falling of foreign articles into the engines."

The subunit IAS leaders inspected the engine heaters, they made certain they were full of fuel and took care to secure spare batteries and bulbs for the flashlights. Guards Engr-Maj P. Andreyevets, assigned as the flight senior engineer, phoned the deputy commander of the service subunit and warned about the possibility of ice forming on the artificial surface of the airfield.

"Certainly, before the start of the shift I will instruct the drivers about the routes and speed of travel over the airfield," he said. "I also ask you to remind them of signals in approaching the aircraft and in leaving them and on the rules of using lights in moving along the taxiways so that the drivers do not create additional difficulties for the aviators."

The squadron IAS officers were concerned with supplying the personnel with additional food, newspapers and magazines as well as supplying the quarters at the technical position with heating equipment.

Our specialists always leave for flights in a good mood and effectively service the supersonic aircraft under any weather conditions, during the day and at night. Under the leadership of Guards Maj Tech Serv N. Litvinov, Guards Engr-Majs P. Andreyevets and L. Garasin and other IAS communist leaders, the personnel marked the 26th CPSU Congress with worthy military service. The guardsmen reported on the successful

fulfillment of the plans for the first months of the winter combat training and on shortening the time for reaching combat readiness and ensuring flight safety. At present, under the impression of the party forum, the pilots, technicians and mechanics of the guards air regiment are successfully carrying out its historic decisions.

In the course of the night flights which we are discussing here, the weather noticeably deteriorated as the weather specialists had warned. The wind and frost picked up and a ground wind appeared. But the cold snap did not catch the technicians unprepared. They had taken precautionary measures so that snow and moisture did not get into the aircraft. With the aid of flashlights and portable lanterns they inspected the aircraft, quickly fueled them and supplied them with everything necessary for the next flight.

The collective made certain that each technician had perfectly mastered the procedures of operating the engine heaters. The specialists regularly conduct training sessions and learn to set up the hoses and adjust the heating device. During the tactical flight exercises, the technical crews, away from the basic personnel of the subunit, repeatedly demonstrated high skill. But experience has shown that during such crucial shifts as night ones, it is better to entrust the servicing of the heaters not to the technical crews but rather to a group specially assigned for this. The subordinates of Guards Capt Tech Serv V. Polyakov for the entire flight shift were released from jobs not related to the operating of the engine heaters. They performed these operations more efficiently and in every possible way aided the crews in maintaining a precise pace for readying the equipment and in concentrating on carrying out difficult tasks.

Not so long ago during the night shifts we had our problems. For example, certain young technicians (and there are many of them in the squadron) for a long time were unable to rid themselves of timidity which impeded the work and they made mistakes in releasing a pilot for a flight and in the course of eliminating breakdowns. This could not help but alarm the IAS leaders. They established that the errors had appeared due to the fear of the young instruments of losing the tool in the dark or forgetting a removed cap on a wing and because of the inability to allocate attention and efforts. Upon discovering a defect the specialists try to eliminate it as quickly as possible without going deeply into the cause of it. And hurry sometimes led to shoddy workmanship and gave rise to uncertainty. Usually by the end of the shift such specialists were greatly fatigued.

Once at a technical conference one of the pilots pointed out that if the technician who monitored his work with the cockpit equipment before the take-off gave commands confidently and knowingly, this confidence was passed on to the pilot. He could very keenly spot nuances of uncertainty and timidity in the voice of his ground assistant.

We have endeavored to consider these psychological nuances. In particular, we have begun to conduct specialist training more effectively. One of the experienced technicians performs the role of the pilot and his young comrade goes through the sequence with him in turning on the power safety breakers and adjusting and tuning the equipment in accord with the specific mission. The TECH chiefs of the flights here systematized the characteristic mistakes and analyzed them in the technical analyses.

Additional training and exercises have been organized with the specialists in studying the equipment in the TECh classrooms and laboratories under the supervision of such experts as Guards Capts Tech Serv V. Rulenkov and V. Bondarev. On disassembled assemblies and units and electrified stands, the young men master the procedures of adjusting and replacing parts in the hydraulic and fuel systems, measuring clearances in controls and working on other complex operations. All of this makes it possible to more profoundly understand the work procedures and the physical sense of the processes occurring in the systems. The young technicians have begun to operate the equipment more confidently, and more importantly, more soundly and in the event of problems independently search for a way out of the difficult situation.

Another effective form of training is to have a young technician perform the duties of a mechanic in working together with a skilled specialist during flights. He acquires the skills of directing the mechanics of the maintenance groups and more thoroughly studies their duties. This is essential. Once an aircraft equipment mechanic, in changing a light filter, made an error and put in a different one instead of a green. After the flight the pilot commented to the technician that a "foreign" light constantly irritated him and distracted him from the developed stereotype of controlling the instruments. The technician did not have a sufficiently firm knowledge of the operations performed by his subordinates and for this reason was unable to carefully monitor the work of the mechanic who had changed the light filter. Training in performing the duties of junior specialists make it possible to direct them more confidently and eliminate failings.

How is it possible to maintain that high psychological mood with which the technician arrives at the airfield up to the end of the flight shift so that after the signal of the end of the flights he could quickly and flawlessly perform the post-flight preparations and not make mistakes in returning the aircraft to a combat-ready state. This can be done by precise and unflagging control by the IAS leaders over their subordinates and by high exactingness which excludes any oversimplifications and concessions by them. Officers A. Chernobrivets, N. Lipatnikov and others carefully monitor the mood of the men, they promptly spot initiative by subordinates, they commend in every possible way the industriousness and direct the work of activists at generalizing advanced experience.

I recall how the young technician, Guards Engr-Sr Lt A. Vil'dyayev for the first time independently readied an aircraft for a flight. The party and Komsomol activists that day made up a photograph and on behalf of the collective warmly congratulated the comrade on his success and wished him faster development to the level of the experts. Subsequently, A. Vil'dyayev became one of the best subunit specialists and in a short period of time won the title of 1st-Class Aviation Technician.

After one of the flights, a somewhat unusual express leaflet was put out. There were three photographs and a text under each one. Our fellow servicemen, Hero of the Soviet Union A. Mirovich 37 years ago carried out a risky and crucial mission. He sought out and photographed a concentration of enemy trains, having prepared the necessary data for the bombers. Next to his photograph was a portrait of the best pilot in the regiment, Officer I. Mel'nikov who under instrument weather conditions had brilliantly carried out one of the most difficult course exercises in flight training. The activists devoted the third piece to the leading technician, Guards Sr Lt Tech Serv V. Rytov who had readied the aircraft of I. Mel'nikov. The aircraft assigned to him is considered the best in the regiment.

Indoctrination in combat traditions and showing the succession of generations help the aviators to develop pride for their profession and more fully realize their involvement in defending the motherland. The aviation specialists are proving themselves to be dependable assistants of the pilots. They maintain the equipment in full combat readiness for take-off and for carrying out any difficult mission.

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AIR FORCES

FLIGHT REGIMENT: WORK OF STAFF OFFICERS DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 pp 42-43

[Article by Lt Col L. Smirnov: "The Activeness of a Staff"]

[Text] The duties of staff officers in an aviation regiment are diverse. But I would term the main ones those which are related to direct support of the high quality and effectiveness of each flight shift and preventing mistakes by the combat pilots and potential air accidents. The intensification of the training process and the greater complexity of the missions carried out force us to work particularly tensely and actively, to constantly seek out reserves and to critically assess what has been done. Only in this instance does a unit's staff become a true assistant of the commander, a true organizer and controller of the training process.

A tactical flight exercise [LTU] had been planned for the squadron headed by Lt Col V. Rodionov. They prepared carefully for it. Although the squadron commander and the chief of staff, Maj V. Fetisov, were knowing, experienced and enterprising men, the staff workers in the regiment did not remain on the sidelines of the important matter. First of all they helped the squadron leadership draw up a detailed plan of measures. In the LTU the crews were to cooperate with the ground subunits, they were to conduct reconnaissance, cross the "enemy" air defense system and land at an unfamiliar airfield. These questions were also shown in the plan.

Upon the orders of the regimental commander, the staff officers selected the required literature and visual aids and conducted tactical exercises. In them basic attention was devoted to the organization and methods of actions of the ground troops and to the air defense weapons of the armies in a number of capitalist states. The flight personnel received precise recommendations on how to effectively execute one or another element of combat employment.

The staff drew up a detailed diagram of the airfield where the aircraft were to land. The crews were acquainted in detail with the approaches to it and studied the characteristic nearby markers and landing conditions. Such a measure was beneficial as everyone completed the flights without errors.

Work intensity in the exercise was rather high. In order not to allow delays we organized several training sessions for the flight control group using specific planning tables. Such exercises were also held in the support units and this made it possible to more accurately concentrate efforts in terms of place, time and targets.

In the course of the LTU, the regimental staff officers actively aided the squadron command. Largely due to their efforts, the subunits successfully carried out all the tasks. The crew where the Specialist 1st Class, Communist, Maj B. Poluektov, is the navigator performed better than the others. At an officer meeting we carefully analyzed the activities of each staff worker during the period of preparing for and conducting the exercise, we adopted the best and outlined the ways to eliminate shortcomings.

Our communist officers show efficiency and directness in carrying out the commander's decisions and in collecting and preparing various data not only during the exercises but also in daily flight training. It should be pointed out that in the past the situation was different. It happened that on the eve of the flights a good deal of time was taken up by various sorts of instructions, meetings, the transmitting and drawing up of written orders. Naturally, not enough time remained for work in the subunits and for monitoring and providing help and this at times led to breakdowns and a lack of coordination.

We could not tolerate such a situation. At one of the meetings and then at a party session there was a thorough, concrete discussion of the style and methods of organizational activities carried out by the staff officers. Virtually everyone voiced his opinions on these questions. The essence of the comments can be briefly reduced to the following. More planning in the deeds and actions; the basic place for our work is not the offices but rather the squadron training auditoriums and the airfields; we should more decisively shift from telephone calls to personal contacts with subordinates. We began to proceed thus subsequently and this had a positive effect on the course and results of flight training.

I recall that the command was concerned by the drop in the indicators of individual navigators. A check established that some of them underestimated the importance of independent preparation for the flights and at times had a formal attitude toward training on the special equipment and work areas in the aircraft cockpits. All of this was reported to the regimental commander, while suggestions were made how to rectify the situation and these be adopted.

Training sessions since then have begun to be carried out under the compulsory supervision of the navigation service leadership. The strongest educators, including the Specialist 1st Class, Communist, Maj P. Serenko, have shown how to better organize preliminary preparations and the exercises on various subjects. Moreover, the computational data prior to each flight are now given directly in the presence of a senior man: the squadron navigator checks the flight navigators and the latter their subordinates. The skills of this category of flight personnel have noticeably improved.

An unfailing law in our work is a plan of measures for the month. In compiling it we consider the specific conditions under which we will carry out the tasks, the level of knowledge and skills of the pilots, navigators and other specialists, the degree of combat cohesiveness among the crews and subunits, the educational preparedness of the leaders and much else. Without this it is extremely difficult to achieve a precise pace for the exercises, training and work on the aviation equipment as well as coordinate the efforts of the officers leaders. As a consequence, it is impossible to ensure a quality of preliminary and preflight training which would dependably guarantee the success of each flight.

Quite understandably, the elaboration of the month's plan requires great experience. But it does not help if there are omissions in the calculating of diverse data or in the keeping of the flight documents. It must be pointed out that precisely for this reason we had mistakes in the past. In truth, this did not lead to serious consequences, however the eliminating of the shortcomings required an excessive expenditure of time, energy and sometimes resources. For this reason the staff officers consider the accurate and prompt drawing up of the required documents to be their most important duty.

It is hard to overestimate the role of a staff in ensuring a high organizational level for each individual shift. We endeavor on time and, if possible, somewhat ahead of time, to provide the commander with all information needed for adopting a plan. Later, when the plan has been adopted and the order for the flights has been given, we immediately draw up requests, we issue instructions for rear and radio technical support for the shift, for the organizing of control and communications and we inspect the readiness of the range. Other questions are also settled and the commander receives the essential data for study with the flight personnel and the leadership group. A few words about the compiling of the plan table. We involve in this work the members of the pedagogical council, officers from the command post and weather service, the physician and other specialists. Here by collective efforts we outline the safety measures. We endeavor not to overlook any circumstance which runs contrary to flight laws. The recommendations established by the commander become the law for the flight control officer and the officials under him.

The flight shift has started. What do the staff officers do? In addition to solving other questions, we organize continual weather observation. In our areas is it rather unsteady and capricious, particularly in winter months. The weather situation can cause many worries and at times unpleasantness. We try to keep things from going this far.

At one time the regiment commenced flying under simple weather conditions. But the forecast was alarming and we periodically informed the flight control officer of the slightest changes in the weather along the route and in the areas of other airfields. The airborne crews also continuously watched it. The Military Pilot 1st Class, Lt Col V. Rodionov, stated that a low dense cloud formation and a belt of fog were approaching our point.

The commander decided to land all the aircraft and after appropriate preparations began flying on the alternative plan. Such a changeover is a very important moment in the work of the staff officers. In a short period of time they checked the readiness of the crews and the control and monitoring equipment for operating under the changed situation. Subsequently the flights began to be carried out according to the plan.

As a rule, the staff officers not only spot shortcomings in the actions of those whom they are monitoring in flights. They immediately endeavor to understand the reasons for their occurrence and provide help in eliminating them. Here is an example.

Two crews were somewhat held up in taking off. Maj V. Chub could only record this fact in the notebook and be concerned. But he immediately ascertained that the guilty parties had been specialists in a maintenance group who had not succeeded in

preparing the aircraft equipment on time. The communist V. Chub was immediately concerned that this not happen again. Thus, material was taken for the coming flight analysis. Moreover, the case suggested to the staff that control had to be strengthened over equipment servicing and the men more rationally positioned.

During the period of the flight shift, data continued to accumulate for a flight analysis. In addition to this we begin to prepare visual aids such as diagrams, maps and posters. Without fail we make tables of the grades received by the combat flyers for piloting techniques and combat employment.

Each staff officer considers it his duty to generalize and introduce all the best coming from practice. We endeavor to make advanced experience more quickly available to all pilots and navigators. I recall how in one of the exercises the crew of the communist, Capt A. Yakubzhanov, distinguished itself in employing a very successful tactical procedure. Without delay we drew up a detailed diagram of the crew's flight and acquainted all the pilots and navigators with it. This helped them subsequently in more successfully carrying out the received missions.

The staff makes a noticeable contribution to improving the quality of the training process and flight safety. But it would be wrong to assert that everything has been completely organized in our work. There are shortcomings and we discuss them at service meetings and party sessions and we adopt measures to eliminate them. This helps provide more effective aid to the commander in directing flight preparations and in strengthening the regiment's combat readiness.

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AIR FORCES

HELICOPTER CREW COMBAT TRAINING DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 4, 1981 pp 46-47

[Article by Lt Col I. Onishchenko: "Dedication to the Skies"]

[Text] Capt Valeriy Mironenkov walked slowly across the parking area toward his camouflage-painted helicopter. The officer's face was serious and his thoughts were concentrated on the coming flight. By the helicopter, Mironenkov accepted the report by the flight technician, Sr Lt Tech Serv Aleksandr Shestakov. Nodding toward the specialists who were engaged in the last preparations of the unguided missiles, he asked:

"How are they doing?"

"They are winding up, comrade commander," replied Shestakov. "Everything is going according to plan...."

The captain climbed into the cockpit and sat in his seat. Without putting on his parachute, he leaned back. For some time the officer sat motionless, again thinking through everything related to carrying out the received mission. Then, he climbed down. He realized that the combat employment flight was a very crucial one. From the results of the firing they would judge professional skills, the moral-combat qualities and the psychological conditioning of the entire crew.

Mironenkov did not doubt the skill of his subordinates. They had prepared earnestly on the ground and he had supervised their actions more than once. The pilot-navigator, Sr Lt Aleksey Golushko, his first assistant, was excellent in calculating the flight stages regardless of how complicated the route to the target. The flight technician Aleksandr Shestakov was a first-class specialist and knew the helicopter well.

Having inspected the helicopter and delaying near the units with the rockets a little longer than ordinary, Mironenkov commanded:

"Crew, take your places!"

Permission was received from the flight control officer to start the engines. The rotor began to spin ever-faster. The helicopter was free of the electric power. The pilot taxied toward the strip. An inspection hovering and then take-off. The

arrow of the altimeter began hurriedly to mark off the first score meters of altitude.

Below was a dark brown plane with sparse groves of trees. However soon the mountains would begin. According to the mission they marked the "front line." Behind them lay the firing range, the place of the missile attack against the "enemy." Mironenkov realized that it would not be so easy to hop unnoticed deep into the enemy defenses. From the intelligence data received before take-off, the objective of the attack was covered by strong air defenses, including ground-to-air missiles. It was also possible that "enemy" fighters would be encountered.

The day was unusually sunny and clear. The mountains could be seen long before the approach to them. At the start of them the crew could fall under air defense fire from the defending troops.

"Let us begin maneuvering," said the commander over the intercom.

This was done to reduce the probability of the helicopter being hit from the ground from small arms fire. After a certain time came a new order:

"Let's us drop down into the ravine. Strengthen observation of ground and air."

A pilot needed the most delicate piloting techniques. Right near by were steep, almost perpendicular cliffs overgrown with pines. The Military Aviator 1st Class, Capt Mironenkov confidently flew his helicopter along the difficult, twisty route.

...Having completed school, Valeriy Mironenkov became an officer candidate at the Syzran' Air Force Pilots School. "He loves to fly. Tolerates G-loads well. Tenacious in achieving goal." These were lines from the officer candidate review of Valeriy.

But it did not start at all easily. The area where they learned to hover was rather large. But the officer candidate only at a price of great effort could keep the helicopter within it. At one time he even said in a fit of temper:

"They won't make a real pilot out of me."

"Why not?" asked the instructor, Sr Lt A. Grin', calmly. "The exercise, of course, is a difficult one. But others can handle it."

They went through the theory. Then they again took their places in the over-heated cockpit. And once Valeriy felt that the helicopter had begun to behave completely differently and was obedient. The success added confidence in his forces. He worked even harder at his studies and the intense work and help from superiors produced good results.

There were difficulties subsequently. But Mironenkov did not fear them, he studied purposefully and industriously acquired skills.

In the line unit, the young pilot also unswervingly followed the rule of do as your conscience says. He willingly adopted all that was better and valuable. In mastering new heights of skill he was aided by the flight leader and other more experienced comrades.

The authority of Valeriy Mironenkov rose steadily. They began to give him missions of increased complexity. And the officer carried them out successfully. The delivery of personnel or cargo to the destination, conducting reconnaissance, firing --just name the missions the communist pilot had to carry out during the day and at night, under the most diverse tactical and weather situation!

The men of the present crew had been working for more than a month. When they had learned to work together and become accustomed to each other, Capt Mironenkov told his subordinates: "Comrades, now we must start our struggle for excellent results in military training and the preCongress socialist competition."

"We have rivals, of course, serious ones," said Sr Lt Aleksandr Shestakov, supporting the commander, "but I am confident that we will be able to greet the 26th CPSU Congress among the right-flankers."

"For the crew of the secretary of the squadron party bureau" said Sr Lt Aleksey Golushko, entering the conversation, "any other indicators are unacceptable."

"We will consider that my proposal has been affirmed unanimously," concluded Mironenkov.

To gain from each flight a maximum return--this was the decision of the helicopter troops. They now prepared even more industriously to carry out the missions and even more carefully analyzed their results using the data of the recording equipment. The results of the training were pleasing and evermore often the subordinates of Capt Mironenkov who were used as an example to fellow servicemen. And now this flight.

...Not a shot was fired from the ground. The situation in the air was also calm. Hence the plan of crossing the air defenses had come off and the helicopter was still not noticed by the "enemy."

"We are approaching the target," reported the pilot-navigator.

"Roger. I am climbing...."

The range lay immediately after the last pass. One other difficulty: the aiming and launching of the rockets had to be done from a short combat run. Consequently, the handling of the controls had to be the most delicate.

The helicopter was over the range.

"In combat, permission to execute," asked Mironenkov of the flight control officer.

The earth gave its "ok." The weapons panel and the optical sight were already fully ready. The safety catch was already off the launch button for the unguided missiles.

The horizontal visibility was unimportant. The helicopter was traveling precisely on course. The views of both pilots were aimed far ahead while the flight technician observed the ground and the air. The target could be seen evermore clearly. If the missile strike against the head motor vehicle was accurate the other projectiles could hit the other vehicles.

Capt Mironenkov "lined up" the target in the crosshairs of the sight. Immediately there was a salvo. The helicopter shook, a sharp crack was heard and the unguided missiles flashed forward in bright sheaves of smoke. Immediately bright bursts of flames broke out on the ground. The rockets flashed and only a heap of shapeless metal remained of the vehicle. Mironenkov was already leaving the target in an energetic turn.

A second pass and then a third.... The attacks were accurate and the firing unstoppable. The mission was successfully carried out.

In this difficult flight for combat employment, Valeriy Mironenkov skillfully maintained all the parameters. He promptly made corrections for the wind and by confident maneuvers saved the crew from an "enemy" strike from the ground. The commander's eyes were sharp and his hands firm.

Mironenkov turned around to his assistants, smiling widely, and shouted over the roar of the engines:

"How is that for work?"

"Quite normal, commander," replied the pilot-navigator and flight technician together. "Congratulations...."

"And I congratulate you."

We met after the flight.

"Our plans in the pregress competition have been completely carried out," began Capt Mironenkov slowly. "All that we planned we have done. The crew as before is an excellent one and I have promptly reaffirmed my class rating. Now we must go farther."

After a short pause he added:

"The word 'take-offs' is probably my favorite word. Hearing it in the earphones I come totally under possession by an amazing state where every cell of my brain and every muscle of my body are working to carry out any assignment as successfully as possible."

A praiseworthy trait, this total dedication to the sky. Capt Mironenkov is not yet 30 so his dreams will certainly be realized.

The military service of the helicopter officers has been properly praised by the motherland. For high achievements in military and political training, for unstinting carrying out of the assignments of the command and for expert mastery of complicated aviation equipment, the communist Capt V. Mironenkov has been awarded the Order of the Red Star. Sr Lt A. Golushko has received the medal "For Valor." The chest of Sr Lt Tech Serv A. Shestakov has been embellished with the medal "For Combat Services."

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NAVAL FORCES

SOVIET-U.S. ROLE IN INDIAN OCEAN DISCUSSED BY FRENCH ADMIRAL

Paris DEFENSE NATIONALE in French Jul 81 pp 69-83

[Article by Rear Adm (reserve cadre) H. Labrousse: "Stakes and Challenges in the Gulf and the Indian Ocean"]

[Text] The Foundation of the Future, headed by Jacques Baumel, organized in the National Assembly on 8 January 1981 a conference on "The Stakes of a Multipolar World."

The paper below, dealing with the shift of the international center of gravity toward maritime areas outside Europe and presented by Rear Adm (reserve cadre) H. Labrousse, member of the National Defense Studies Committee, stressed especially the present situation in the Indian Ocean and the Persian Gulf region following the events in Afghanistan. By way of conclusion the author proposed the creation of new power poles in this region, including a European Energy Protection Agency that would bring together the naval and air capabilities of the EEC member-states.

Extra-European Maritime Areas: The Indian Ocean

For roughly the past 20 years the Indian Ocean has witnessed a phenomenon of "expansion of power," prompting the United States and the Soviet Union to considerably increase their presence in this maritime area. This phenomenon, connected with the notion and state of being a superpower and which involves the ocean spaces, is also perceptible in the Pacific Ocean region where the international ocean bed, because of the fabulous amounts of metal nodules which it holds, is drawing the industrialized countries into a new race for resources.

Any expansion of power inside the continental landmass being difficult and dangerous, the major powers deploy their forces toward the last free spaces while safeguarding by every means possible the unrestricted movement of these forces through straits, inland seas, and archipelagos.

The United States is what is called a "world island," that is, a continental island all of whose activities are connected with the sea. Two of the American states, Alaska and Hawaii, are noncontinental. All the American territories of

the Pacific and the Atlantic and 41 of the 43 countries with which the United States has treaties relating to collective security are located overseas. The United States is thus led to use the oceans as barriers for its defense and as open roads to extend its influence abroad. The industry and foreign trade of the United States depend on maritime traffic both to the east and to the west. The American economy calls for great capability in the field of maritime transport. The interests and political commitments of the United States in the world make it necessary for Washington to have great influence abroad. For all these reasons the United States has built a powerful navy entrusted with two missions: To keep the oceans free so that commercial maritime traffic may move without constraint and, second, to have the capability to enjoy overseas, through military and naval means, a certain amount of power to modify a given situation.

This is the reason why the United States has a presence in the Indian Ocean.

The Soviet Union is a land power both in an economic and in a political-military sense. If it became necessary, the USSR could live autarkically and keep its industry operating at a high level without sending a single one of its vessels outside its coastal waters. The Soviet Union could forego importing raw materials, for the latter are all located within its continental mass. Additionally, most of its political relations are established within the European-Asian landmass. The Soviet Union could protect all its satellites or attack its neighbors without using the sea.

It is the implications of the cold war and the USSR's desire to become a world power which prompted it to build a navy from scratch, without any old craft, and which could thus be in confrontation with that of the United States on all the oceans. In fact, what the Soviet Union sought was to secure the control of the seas, a control making any remote attack impossible on the part of an adversary.

During 1979 a second edition of the book written by Adm S. G. Gorshkov, commander in chief of the Soviet Navy, "Seapower of the State," provided in a new chapter entitled "The Modern Problems of the Art of Naval Warfare" a few interesting indications of Soviet oceanic strategy which has to be integrated into a unified military strategy conceived so that the three armed services (army, navy, and air force) may collaborate closely. One should perceive in this presentation the Soviet Navy's concern to be more intimately involved in the general strategy of the USSR in which it has been assigned a secondary role for a long time. But what is also interesting in this chapter is everything that concerns the strategy of nuclear war. Admiral Gorshkov would like to see the submarine strike force integrated into what he calls "absolute sovereignty," that is, the "strategic missile force." This would enable the Soviet Navy to play a more important role than what is now assigned to it and which seems limited to naval objectives and the destruction of the ports and bases of its adversary. The second strike capability represented by the nuclear submarine force is obviously of a nature to reinforce these arguments.

In this new chapter Admiral Gorshkov also advocates the development of a navy capable of conducting all missions and strives to convince the Soviet military strategists of the need to revise their thinking, in his mind overly directed to a

continental strategy based on land power. Responsibility for strategic planning in the USSR falls under the general staff, in which the navy is represented only by a liaison group.

The spectacular development of the Soviet Navy gives Admiral Gorshkov new reasons to integrate naval power more thoroughly into his country's world strategy and to endow this navy with a status which could no longer be brought into question even after the disappearance of the team now in office.

There is no question but that the Soviet Navy is approaching its maturity, and the power that it has acquired in all the oceans of the globe has given it a stature which will have to be taken maximally into account in the coming years.

To check this Soviet threat, the United States and its allies enjoy a major geographic advantage, namely, there is no Russian port widely open on the ocean. Whether it is Murmansk, Vladivostok, the Black Sea, or the Baltic, Soviet warships have to cross straits or inland seas to engage their enemy. That is why the United States has always supported whatever their political regimes, countries controlling straits--Greece and Turkey, Spain and Portugal, Norway, Denmark and Iceland, South Korea and Japan, Indonesia and the Philippines, and so on. The most effective way to neutralize the Soviet naval threat in a warlike situation would be to close the straits through which Soviet vessels would have to pass in one direction to reach their adversary but also in the other direction to take on supplies in Russian ports and bases. Accordingly, the Soviet Union has deployed, already in peacetime and in line with this phenomenon of power expansion, its naval and air forces in the Mediterranean and the Indian Ocean.

But why in the Indian Ocean?

Five principal factors, economic and strategic, have helped to make this region of the globe the main theater of major future confrontations in keeping with the interests involved in it. They are as follows:

1. The production and large-scale shipment by sea of the oil from the Persian Gulf and from the coastal countries of the Indian Ocean totaling some 1 billion tons a year.
2. The production and shipment of raw materials in which the countries of the Indian Ocean lead the world.
3. The growing demographic size of Third World countries in the Indian Ocean.
4. The tenacity evidenced by the Soviet Union in establishing its influence in the Red Sea and the Indian Ocean where it strives to be equal to the United States and to be able to play its role as an Asian power, a role persistently questioned by China.
5. The imperious need for the United States to retain control over the gigantic energy reserves of the Gulf's oil, to protect its supplies in raw materials originating from the Indian Ocean, and, from a strategic viewpoint, to hold indirectly

the Malaysian and Indonesian straits which link the Pacific with the Indian Ocean and make possible the movement of nuclear submarines around China and the Soviet Union.

U.S.-Soviet Talks Concerning the Indian Ocean

This bipolarity in the Indian Ocean gave rise to talks between Washington and Moscow seeking the limitation of military forces in this ocean. The talks have been suspended since 1978 and the political climate which has developed between the two superpowers has not facilitated the resumption of negotiations. However, the negotiations were not broken and, at the Vienna summit in June 1979, reference was made by the two sides to the resumption of these talks.

The failure of the negotiations to limit the military forces of the two superpowers in the Indian Ocean stems on one hand from the overlap of these talks with the Somali-Ethiopian conflict which poisoned the relations between the United States and the Soviet Union at a crucial moment and on the other hand from the complexity of the issues involved. It is very difficult to reach an agreement when the two parties are not convinced of its need. Additionally, the problem of definitions was nearly as complicated as that raised by the SALT [Strategic Arms Limitations Treaty] negotiations.

In their commentaries the Americans, like the Soviets, do not seem persuaded of the usefulness of these talks, both with each other and with the coastal countries of the Indian Ocean. The United States accuses the USSR of provoking the break in the negotiations much more by virtue of its military operations on land and in the air in Africa and South Yemen than by its naval activity. Washington considers that the American naval presence in the Indian Ocean is necessary, in reassuring to its allies, and enables it to avoid becoming engaged like Moscow, in military assistance operations with an airlift, military advisers, and permanent presence.

It is certain that, to achieve such an agreement, it would first be necessary to limit to the maximum the intrusions of the superpowers in the affairs of the Indian Ocean's coastal states and its hinterland. For the time being, the interference of the USSR in Afghanistan, Ethiopia, and South Yemen will discourage the resumption of such negotiations.

The idea of limiting the military forces of the superpowers in the Indian Ocean was never strongly supported by the negotiators, and its timeliness was questionable. It would have been necessary first that the United States and the Soviet Union be strongly convinced of their reciprocal determination to protect their vital interests in the Indian Ocean. The slightest ambiguity on this subject could indeed be a source of conflict. This criterion should have underlain their discussions in Bern before they broached the stabilization of the level of their respective forces. These are the reasons for the presence of the U.S. and Soviet navies in the Indian Ocean, reasons which should have been discussed and codified. But it seems unquestionable that the problem was more or less badly raised deliberately. Too, there is only little hope at the moment for seeing these talks resume in a climate of mutual understanding some day.

Washington's Concerns

The year 1979 was marked in the Indian Ocean by the invasion of Afghanistan and the tension provoked in February by the attack against the U.S. embassy in Teheran followed in November 1979 by the taking of hostages and the fire at the American embassy in Islamabad. Starting in March, Washington reacted by concentrating in the Indian Ocean first one and then two very powerful task forces focusing on nuclear aircraft carriers carrying atomic weapons and capable of waging large-scale offensive operations. However, these task forces remained in the Arabian Sea and did not pass through the Strait of Hormuz. Inside the Persian Gulf the American Middle East Force, based in Bahrain and made up of several frigates, was ready to intervene if the movement of oil were threatened. The American base at Diego Garcia in the Chagos Islands witnessed renewed activity, and the construction of new and very sizable installations was approved by the U.S. Congress in Washington. Even though located 2,600 nautical miles from the Persian Gulf, Diego Garcia is a vital base, logistical as well as operational, for the American naval forces deployed in the Indian Ocean. Very long-range patrol aircraft make it possible, from this airport, to overfly this entire ocean and to keep close watch there on the movements of Soviet naval units. Seven cargo transport planes are permanently based in Diego Garcia, completely loaded with heavy equipment, weapons, ammunition, fuel and supplies for the U.S. Marine brigade which is earmarked to intervene within very short notice in the Gulf region as well as any other region of the Indian Ocean. However, the experts in the Pentagon consider that this base is presently vulnerable and that it would not be immune to a conventional air and amphibious attack launched by Soviet vessels such as an aircraft carrier of the "Kiev" class and amphibious craft of the "Ivan Rogov" class.

Furthermore, Moscow can unleash a surprise attack against Diego Garcia by using its intermediate SS 20 IRBM's launched from Kandahar and Helmand provinces at the southern border of Afghanistan. The maximum range of the SS 20 IRBM's was estimated by the International Institute for Strategic Studies to be 3,107 statute miles. As is known, the SS 20 missile has a multiple warhead (three times 150 kilotons) and an accuracy range in the order of 100 meters.*

Accordingly, strong pressure is being exerted on the U.S. Congress by the American secretary of defense and the Pentagon to endow Diego Garcia with increasingly more powerful defense capabilities and especially with antimissile capabilities.

One should also note that some American strategists such as Adm Thomas H. Moorer are not particularly convinced of the need for land bases in the Indian Ocean, subjected to constraints and threats, and often like Berbera surrounded by a more or less hostile population. These strategists prefer to have a mobile force, without fixed trappings, made up of nuclear aircraft carriers and other combat vessels and

*George Johansson, "Needed: A Defensive Capability for Diego Garcia," Proceedings [n.p.], January 1981.

supported by numerous logistical ships transporting everything that is necessary to the operations of this mobile force and its maintenance. They complain that land bases and even Diego Garcia are too vulnerable to retaliatory actions. Adm Hyman G. Rickover, the father of the U.S. nuclear fleet, goes even further and proposes to eliminate the supply tankers of the naval forces in the Indian Ocean and to send to this zone only nuclear-propelled vessels whose staying capability at sea, in the order of 2 years, does not require any resupply.

Other arguments in favor of the mobile force are made by experts in nuclear strategy who play up the formidable capability of naval atomic weapons thanks to the cruise missiles equipped with a nuclear warhead and transported by planes based on aircraft carriers. The mobile force in the Indian Ocean could without difficulty reach the entire southern portion of the USSR where the defenses are the weakest and cause such damage there that the Soviets would be compelled to negotiate. It must be said that Moscow perceives this threat perfectly well and that it has consistently requested in the SALT talks that advanced nuclear weapons systems such as those carried by aircraft carriers be the subject of discussions and limitations.

But the analyses on the form which the American presence in the Indian Ocean should assume were outdated in short order by the Somali-Ethiopian war, the events in Iran, and the invasion of Afghanistan, which gave Washington every reason to beef up its naval presence. This tension has demonstrated that some land-based situations have immediate repercussions on the balance of American and Soviet naval forces in a region as sensitive as the northwestern portion of the Indian Ocean. Negotiations on the limitation of these forces were suspended, and the former plans for "demilitarization," "neutralization," and "denuclearization" of this ocean were abandoned, for events clearly evidence that these plans would automatically have given the USSR enormous geopolitical advantages, if only because of its proximity to the Persian Gulf and the shores of southern Asia.

For Washington the problem now consists in turning the situation around by rebuilding a credible military presence in the Indian Ocean likely to stabilize the entire region. Outside the "area of crisis" which stretches from Somalis to Pakistan and which attracts the presence of American forces, the United States will have to re-instate its superiority over the USSR throughout the Indian Ocean in order to influence the coastal states and demonstrate to them that the balance of military forces now tilts in its favor. The development of the American naval presence is closely linked to the maintenance of a certain stability in this region of the world. The facilities, such as the access to ports and airports, which Washington has requested from some coastal states such as Kenya, Somalia, and Oman, will be maintained only if the governments of these states are convinced that they are protected against any infringement of their sovereignty and against the pressures of the Soviet Union.

But it is also through the use of these facilities that the United States will develop its influence among the coastal countries of the Indian Ocean. The latter will thus be able to verify the credibility of the American forces and will cease to imagine, as has often been stressed, that the presence of American naval and air forces in the Indian Ocean has no other goal besides effecting maneuvers connected with high intercontinental strategy.

Control of Wartime Routes

The invasion of Afghanistan has been pointed to in the United States as the old reflex of the Russia of the czars to reach the warm waters of the Indian Ocean. With the southern border of Afghanistan 600 km from the Arabian Sea, Soviet aircraft based in southern Afghanistan are close to the maritime routes of the Gulf. They use the airstrips of Herat, Shindand, and Farah and are much better positioned to intervene in the Gulf than if they were based in Teheran. They can thus threaten the Strait of Hormuz, a vital artery for Europe which receives 60 percent of its oil by this route.*

Washington is particularly concerned by the situation in Baluchistan on the southern border of Afghanistan lying astride southeastern Iran and southwestern Pakistan. This unstable territory has attempted in the past 10 years, under the pressure of its inhabitants, the Baluchis, to form an independent state separate from Iran and Pakistan. In the past few months this separatist movement has gathered momentum because of Teheran's difficulties. An independent Baluchistan would certainly seek the support of a great power to protect itself against Iran and Pakistan. Under such circumstances the Soviets could intervene, using an Afghan Government under their orders. A pro-Soviet Baluchistan would have three ports on the Arabian Sea--Shah Bahar, Gwadar, and Pasni--as well as about 1,000 km of coastline on this same sea. The advanced bases in southern Afghanistan and the ports of Baluchistan would give to the USSR a very strong position liable to threaten the entire Gulf and to neutralize the American naval forces stationed in the region.

Accordingly, the U.S. Government attentively watches the situation in South Yemen and Oman. In Aden, the Soviet Navy has built a permanent base which accommodates its Indian Ocean fleet and even nuclear submarines. The three Cuban battalions in South Yemen are training, with first-class military equipment, a Yemeni mobile force which could be used for a strong, quick thrust against Oman. The latter country already witnessed an attempt at destabilization through 1974 by a guerrilla force in the Dhofar region supported and maintained by South Yemen and the USSR. A new uprising in the Dhofar, backed by the South Yemeni and Cuban forces, would stand a good chance of destabilizing Oman and thus enabling the USSR to subsequently attack other moderate governments such as Saudi Arabia. It is sufficient to recall that in the Grand Mosque affair [in Mecca] in November 1979, nearly 100 of the attackers out of 500 had received special training in South Yemen provided by Russians and Cubans and that Yemenis took part in the attack. It is known that units of the South Yemeni army, accompanied by military advisers of the Soviet bloc, especially East Germans, are concentrated along the borders of Saudi Arabia and North Yemen where stocks of Soviet weapons are stored. A recent British analysis specified that these concentrations were connected with a large-scale plan whose goal was to provoke serious disturbances in several Saudi cities.

The Soviets have also concretized their presence in three countries whose strategic importance no longer has to be demonstrated--Ethiopia, Mozambique, and Angola. In

*In 1979 the Strait of Hormuz was used by an average of 77 ships daily, that is, one vessel every 19 minutes.

Etioopia the Soviets have established a base in Massawa. Thus, with the help of Aden the Soviets can dominate most of the Red Sea zone and threaten the maritime traffic using the Suez Canal, Gulf of Aden, and the Persian (or Arabian) Gulf. The airports in Mozambique enable the Soviets to deploy there "Backfire" bombers equipped with antinaval missiles. The same is true of Angola. The use of such aircraft could halt the flow of maritime traffic around the Cape of Good Hope which now represents one-third of world traffic. In 1974 a Soviet expert noted that "Africa occupied a dominant position in the world because of its reserves in raw materials" and he stressed that "the transport of raw materials, especially oil, is the weak point of international capitalism. It is by attacking these maritime transport vessels that it is easily possible to create a gigantic economic crisis."

In 20 years the Soviet Union has established a powerful navy. It is completely logical that it should now seek to use that navy, and it needs remote bases for its missions and its exercises. In April 1975, during their "Okean" maneuvers, the Soviets were able to deploy naval forces on three major oceans simultaneously.

To support their navy, the Soviets have built an "auxiliary fleet" of merchant vessels, fishing trawlers, and research vessels. Some of these craft are outfitted with extremely sophisticated electronic equipment. The merchant vessels have been designed to transport military materiel such as tanks, artillery, or missiles with nuclear warheads. Military power is a major element in Soviet foreign policy, and naval power will continue to be one of the most important bases of such military capability. Admiral Gorshkov, the commander in chief of the Soviet Navy, has always maintained that this fleet had to be sufficiently strong "to check the ocean strategy of imperialism." This naturally means that it will have to wrest the control of the maritime routes from the Western forces.

In order to face this threat, the Western camp must be able to react in any location in the world. The international game is a gigantic chess game and it is necessary for the partners to have a global vision, both geographic and political, so that they may not be taken by surprise. In this world of interdependence, any delay or any erroneous analysis threatens to lead to disaster in short order.

New Power Poles in the Indian Ocean

To check this bipolar scenario various attempts have been made these past few months to create new power poles in the Indian Ocean. There was first the "peace zone" plan emanating from the Special Committee on the Indian Ocean at the United Nations.

Theoretically, a "peace zone" could be created in the Indian Ocean. However, it could not last and be validly recognized as a collective security organization unless it gave countries outside the Indian Ocean region, and especially the industrialized states, the guarantees which the latter would be entitled to expect. Now, everyone knows that there is no collective security without military alliance.

To provide the guarantees demanded by the industrialized countries, the coastal states of the Indian Ocean should have the means of surveillance and control of

the "peace zone" which they seek to create. Without going into the matter of military alliances, one may wonder whether this possibility exists or whether it still lies in the realm of utopia.

The "peace zone" concept, defined in the discussions of the Special Committee on the Indian Ocean, has always been broached in the context of a failure regional organization, fairly vague, which would give the coastal countries and those of the hinterland a kind of right relating to the future of this maritime region outside the rivalry of blocs and superpowers. This "community" organizational project for the Indian Ocean has never been the subject of precise proposals during the discussions. The hypothetical organization will either be oriented toward strictly economic goals or it will strive to become endowed with collective security structures which cannot exist without military means, especially if local conflicts divide its members or unite them against a common objective. That is what happened in the case of the Arab League. In both cases one cannot easily see how the creation of a "peace zone" would prompt the countries of the Indian Ocean to move to general disarmament, unless it were a maneuver slated to reduce the pressure of the superpowers in that ocean. If this hypothesis is the right one, the peaceful use of the ocean regions has only a remote relationship with the initiative of the Special Committee.

In Southeast Asia, in the eastern Indian Ocean region, ASEAN [Association of South-east Asian Nations], which includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand, represents a new power pole around the Malaysian and Indonesian straits. However, its political importance is not evident in any way and its discussions are especially focused on regional economic problems. The Manila Pact, the Philippines-United States Treaty, and ANZUS [Australian, New Zealand, and United States Defense Pact] are primarily localized attempts to back up a limited strategic situation.

A new power pole should be created around the Strait of Hormuz which would be included, like the Baltic straits, the Turkish straits, and Gibraltar, among the straits of international importance whose fate is linked to the highest rungs of peaceful coexistence. These straits have something in common, namely, they are the only means of access to inland seas. Too, their fate is crucial for world peace. The Suez Canal and the strait of Bab al-Mandeb do not have the same importance since it is possible to do without them. That was precisely the case for 8 years. But it is not possible to do without the Strait of Hormuz. It is possible to avoid crossing the Strait of Malacca by passing through Lombok or by Australia. One cannot avoid crossing the Strait of Hormuz to reach the oil in the Gulf whose worldwide importance does not have to be demonstrated any longer.

The Strait of Hormuz should be the subject of a special international convention as was the case with the Baltic straits and the Turkish straits. This convention, in which the rights of the coastal states of the Gulf and of the Strait of Hormuz would be respected and protected, would, through its regional approach, have a role to play in the maintenance of peace and, additionally, it would involve the great powers, would bring them closer to that "peace zone" whose nature the United Nations is vainly striving to define.

Finally, the security of the oil route could incite the Europe of the Ten [EEC countries] to create in the Indian Ocean an organization slated to insure its survival. Europe pays a lot for its oil and transports it not without difficulty along the long Cape route. Europe wants to make sure that the oil arrives. For Europe this is a matter of life and death. Any threat against its supplies, either aimed at the source or against maritime transport, would rapidly become unbearable. One can easily imagine the creation of a European Energy Protection Agency, a new power pole which, without threatening anyone and without interfering in any way in the sovereignty of the coastal countries of the Indian Ocean, would guarantee to the Europe of the Ten the security of its oil supplies by sending the appropriate naval and air capabilities to the Indian Ocean and the Atlantic, capabilities provided by the member-states of the European Economic Community.

The Indian Ocean is undoubtedly the keystone of the major strategic revision of the 1980's. France, a coastal state of the Indian Ocean and a country whose survival depends to a great extent on the movement of oil and raw materials in that ocean, cannot remain indifferent in the face of the confrontation of the superpowers on this gigantic stage. It must involve in its concerns its partners of the European Economic Community, just as anxious as France is about the maintenance of peace in one of the most sensitive regions of the world.

2662

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CIVIL DEFENSE

POCKET CALCULATOR TO COMPUTE RADIATION DOSAGE DESCRIBED

Moscow VOYENNNYYE ZNANIYA in Russian No 5, May 81 (signed to press 9 Apr 81) pp 32-33

[Article by A. Bryukhanov, candidate of technical sciences: "By 'Pocket' Calculator"]

[Text] Charts (gauges), graphs (nomograms) and tables are most commonly employed in evaluating a radiation situation. These can be used to perform relatively rapid calculations. But the assumptions possible in developing them are the main drawback of these nonmechanical devices. Graphs and tables are far from being universally applicable. As a rule they are designed to solve a fairly narrow range of problems. Plotting charts require a certain amount of skill to solve complex problems. The accuracy of graphs and plotting charts depends substantially upon their scale and the precision with which they are made. Tables do not provide answers if the raw data for a calculation fall between given scale values or beyond their range. There are many other drawbacks to the use of these devices.

Electronic computers are now being increasingly widely employed as a general-purpose means of automating calculations insuring accurate solution of the problems associated with the process of evaluating a radiation environment. Microcalculators (keyboard computers) are particularly promising in this application. They are miniature devices (pocket-size) and have a self-contained power source.

While not denying the usefulness of plotting charts, graphs and tables as means of obtaining approximate results in operational calculations, we the development of a procedure for solving certain problems involved in evaluation of radiation environments using microcalculators to be a matter of urgent importance. Let us assume we have to calculate the dose of radiation we would expect to receive from the radioactive contamination of particular area. Now, taking a specific example as a basis, let us look at the procedure employed to calculate these doses.

Radioactive contamination of area A began 3 hours following a nuclear explosion. At that point the radiation level was 150 R/h. It has been provided that from the time the area becomes contaminated the people will have spent 7 hours in a shelter with an attenuation factor $K = 1000$. They will then spend 15 minutes moving out to motor vehicles (for simplicity's sake the time required to board the vehicles will both here and throughout be disregarded) and be transported via points B and C to a railroad station D. The distance between points A and B is 10 km, between B and C 8 km, between C and D 12 km. The vehicles move at an average speed of 20 km/h over the AB leg of the route, 25 km/h over BC and 30 km/h over CD. Radiation levels at points B, C and D have been measured 2, 2.5 and 3 hours following the explosion and are 20, 25 and 35 R/h respectively. Aftering waiting 25 minutes for a train in a room with $K = 10$ the people

board passenger cars and travel at 40 km/h the 23 km to point E, from which motor vehicles transport them at 20 km/h to destination F, which lies 3.4 km from E. There they will work 8 hours in production facilities having $K = 7$. Radiation levels at points E and F were measured 3.5 h after the explosion and were 45 and 50 R/h respectively.

It is recommended that the calculation be performed in four steps. The first step consists of determining the time following the explosion at which the people cross the line at each destination along the route. The result is a table of raw data to be used in subsequent calculations similar to the table below.

The following designations are employed in the table: P - duration of stay at a given point or time en route on a particular leg of the trip, h;

t_e - time of entry into a point or of the beginning of movement on a given leg of the route, h; t_d - time of departure from a point or of the termination of travel on a leg of the trip, h; t_m - time of radiation measurement, h;

R_m - radiation level measured at time t_m , R/h; K - coefficient of attenuation of dose of radiation by ceilings, roofs and means of transportation.

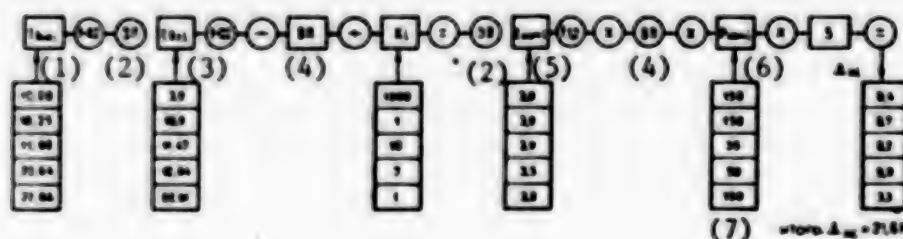


Figure 1. Key:

- | | |
|----------|----------|
| 1. t_d | 4. 1 |
| 2. W | 5. t_m |
| 3. t_e | 6. R_m |
| | 7. total |

It is important that the order in which the points (legs of the trip) are arranged in the second column of the table correspond to the sequence in which they actually occur during movement over the route and that there be a separate line for each change in the value K , even if the location remains unchanged. The first line of the table, for example, indicates that the people at point A were in a shelter ($K = 1000$), the second line that they were in an open area ($K = 1$).

Each line of the table is numbered ($i = 1.2 \dots 15$). If we hereafter let A_i represent the value of a variable A (it could be any variable, for example, K , P , t_e , t_d etc.) with a specific value i we obtain the expression for finding t_e and t_d at all points along the route:

$$t_{ei} = C; t_{di} = t_{ei} + P_i; t_{ei} = t_{di} - 1'$$

where C - time after explosion at which begins calculation of radiation dose, h.

The second step is to calculate the dose of radiation D_{ps} the people received at all points along their route at which they spent a given amount of time. The result of this step is a table of the doses received at the various points along the route:

i	Point, leg of route	P, h	$t_{e, h}$	$t_{d, h}$	Point of measurement	t_m, h	$R_m, R/h$	K
1	A	7.00	3.00	10.00	A	3.00	150	1000
2	A	0.25	10.00	10.25				1
3	AB	0.50	10.25	10.75	B	2.00	20	2
4	BC	0.32	10.75	11.07	C	2.50	25	2
5	CD	0.40	11.07	11.47	D	3.00	35	2
6	D	0.42	11.47	11.89				10
7	DE	0.58	11.89	12.47	E	3.50	45	3
8	EF	0.17	12.47	12.64	F	3.50	50	2
9	F	8.00	12.64	20.64				7
10	FE	0.17	20.64	20.81				2
11	ED	0.58	20.81	21.39				3
12	DC	0.40	21.39	21.79				2
13	CB	0.32	21.79	22.11				2
14	BA	0.50	21.11	22.61				2
15	A	0.25	22.61	22.86				1

i	Point	Radiation dose, R	Activity
1	A	0.4	sheltering
2	A	8.7	moving from shelter to vehicles
6	D	0.2	awaiting train
9	F	9.0	working
15	A	3.3	moving from vehicles to shelter

Total: 21.6 R

Dose D_{ps} consists of the doses the people have received at points where they have spent a certain amount of time (at points A, D and F, for example):

$$D_{ps} = \sum_{i=1}^n D_{pi},$$

$$1 - D_{ps}; 2 - D_{pi}$$

where $D_{pi} = 0$ if i represents movement between points and p the number of lines in the table.

Dose D_{pi} is calculated in accordance with the formula:

$$D_{pi} = 5 P_{sum} t_{sum}^{1.2} \left(\frac{I_{max}^{-0.2} - I_{min}^{-0.2}}{K_i} \right)$$

(1) (2) (3) (4) (5)

1 - D_{pi} ; 2 - R_{mi} ; 3 - t_{mi} ; 4 - t_{ei} ; 5 - t_{di}

Then comes the third step, in which we calculate the dose of radiation D_{ds} received during movement between points along the route. The product of this step is a table of radiation doses received during movement between points:

1	leg of route	radiation dose, R	transportation
3	AB	4.6	motor vehicle
4	BC	0.5	motor vehicle
5	CD	1.1	motor vehicle
7	DE	1.5	rail passenger car
8	EF	0.8	motor vehicle
10	FE	0.4	motor vehicle
11	ED	0.8	rail passenger car
12	DC	0.5	motor vehicle
13	CB	0.2	motor vehicle
14	BA	1.8	motor vehicle

Total: 12.2 R

Dose D_{ds} comprises the doses the people received on all legs of their route (for example, AB, BC, CD, DE, EF, FE, ED, DC, CB and BA):

$$D_{ds} = \sum_{i=1}^n D_{pi}$$

(1) (2)

1 - D_{ds} ; 2 - D_{di}

where $D_{di} = 0$ if i represents a stay for a certain period of time at a point along the route.

If we employ the trapezoidal method we calculate dose D_{di} in accordance with the formula:

$$D_{\text{ai}} = \frac{(2)0.5 \Pi_1}{K_1} \left[P_{\text{ai}} \left(\frac{t_{\text{ai}}}{t_{\text{ai}} + 1} \right)^{1.3} + P_{\text{ai}} \left(\frac{t_{\text{ai}}}{t_{\text{ai}} + 1} \right)^{1.3} \right]$$

(1) (3) (4) (5) (6) (7) (8)

Key:

1. D_{di}	5. t_{ei}
2. P_i	6. t_{mei}
3. t_{mbi}	7. R_{mei}
4. R_{mbi}	8. t_e

where indices b and e indicate that the values t_{mi} and R_{mi} correspond to the beginning and the end of a leg of the route.

In the fourth step we calculate the anticipated dose of radiation D. The result is the value of the sum

$$D = D_{\text{ps}} + D_{\text{ds}}$$

Thus, in the course of traveling the route described in this example the people will receive a dose of radiation equal to 33.8 R.

A graphic representation of the sequence of the calculations of doses of radiation the people receive at a point along the route is provided by the figure, in which are employed the following designations: +, X, :, - - performance of the previously established operation (if any), that is, the operations of addition, multiplication, division or subtraction respectively; $\uparrow k$ - raising to the power k; = - performance of the operation previously set up; W - write indicator readings into memory (if the microcalculator has no memory feature these readings are recorded on a form); I - call to indicator of memory contents (input of data written on form on microcalculators having no memory).

Let us note in passing that calculations of the doses of radiation received during movement between points are set up in accordance with the same principle.

I think anyone who develops a good mastery of the various manipulations of calculations using microcalculators can then move confidently on to the solution of other civil defense problems by "pocket" computers.

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DOSAAF AND MILITARY COMMISSARIATS

FLIGHT SAFETY STRESSED

Moscow KRYL'YA RODINY in Russian No 5, May 81 (signed to press 13 Apr 81) pp 6-7

[Article by Senior Inspector Pilot V. Koryshev: "Anticipate and Not Record"]

[Text] It was an intense flight day. The graduates of the Volchansk DOSAAF Instructor Pilots School were carrying out a task to introduce the students to a new type of aircraft. During this time in the squadron there was a major near miss: student Skorobatov of the Kostroma Air Club made a high-speed drift landing.

Preliminary analysis and a rundown of the potential accident at the take-off area showed that the immediate cause of it was the incorrect allocating of attention in the approach to the landing. And as a consequence there were inaccurate actions with an acute shortage of time in the process of leveling out and the landing itself. Another contributing factor to the violation of the procedure and sequence in allocating attention was the fact that the student adjusted the approach to the axial line of the runway at an inacceptably low altitude, that is, late.

This instance alarmed everyone, particularly the school graduates. After the flight, for a long time, until taps, they discussed what had happened. Each man felt that the situation in the flight was not a complicated one, and each person gave the decision which he would have taken in such a situation. They were all correct. But during the discussion one could also note the idea that it is natural for a person to make a mistake and there is no pilot who flies without mistakes.

Is such an assertion correct? Yes, it is. No one flies without making a mistake and for this reason there are even deviations for a grade of "excellent." But many persons for a long time, for years, fly without any potential accidents caused by them. There are as many examples as one would like of this, for they can be found in each aviation training organization.

What was the basic, main reason for what happened, what were the causes of the potential accident? Certainly it occurred under ordinary, simple conditions for the student in performing already-mastered elements of a flight. It turned out that the student was very late, just above the ground, in noticing the drift of the aircraft and naturally could not eliminate it. But why was he late? Because he did not consider the previously known conditions for the landing approach. But why did he not? Because the flight preparations at the take-off area had been poorly conducted and had been on a low level.

How should the preparations of a student for a flight be carried out? Here we should note the procedural work of the instructor pilot at the Kostroma Air Club, S. Kukushkin. In working with the students in the direct preparation classroom, he uses the diagrams and teaching aids, with the students he goes through the calculations and analyzes the mistakes from the instrument monitoring data. Then, in playing through the flight, he makes certain that the trainees have specific knowledge on the procedure for carrying out the assignments and are circumspect. Without fail he leads them through the scheme for allocating and switching attention according to the stages of the flight under the specific conditions and considering the mistakes made in the previous flight. I have seen him force a student to play through certain stages of a flight several times until he had firm knowledge and precise actions.

After this instructor pilot Kukushkin goes with the student to the aircraft on which he is to fly. Training starts and actions are worked through using the cockpit equipment in the various stages of the flight. And again under specific conditions. It merely remains to be said that the students of Kukushkin fly excellently with good reason and without any potential accidents.

The playing through of the flight by the "walk-through" method is of enormous significance in preparing the students to carry out the flight missions. Any missions. Unfortunately, certain comrades feel that the given method is applicable only for training for formation flight. And hence the conclusion that not all our instructors know how to carry this out or where to use it. At present training areas have been set up at the DOSAAF airfields and it would be a good thing each year, before beginning the instruction of the students in the air, to conduct demonstration exercises for the instructors at them and to teach them to correctly use these areas. The "walkthrough" method should become the basic method in flight preparations at take-off.

In the struggle for safe training in the air and preventing potential accidents, of very great significance is the training of the flight controllers for controlling the flights. Certainly flight instruction has its specific features. While an instructor in the process of the introductory program is constantly next to the student in the aircraft, after the mastery of this program he flies alone, independently. Here there is no direct contact between "student and instructor." Training is carried out via the flight controller who should be able to control this process and promptly help the student in solving all sorts of problems, including those which arise suddenly. The undertaking is undoubtedly a difficult and responsible one and is within the abilities of only experienced instructor pilots.

Let me give an example. In carrying out an assignment independently, student P. Ignashev reported to the command post that the pressure had dropped in the main hydraulic system. The flight controller, the subunits commander, V. I. Matyushkin correctly imagined the situation which had developed and the conditions of the student. By precise commands he helped him lower the wheels manually and land without flaps. Here in each stage of the flight, by prompt commands and instructions, he anticipated the possible mistakes by the student in the given situation.

Unfortunately, instances are known when even experienced commanders who, however, are not sufficiently trained for flight controlling, themselves create a dangerous situation in the air or are impotent to help the student in a difficult situation.

For this reason an experienced instructor pilot and in addition a good pegapogue and psychologist should first of all control the flights of students taking their first steps into the skies.

How are things with the training for flight controlling and control itself in our aviation training organizations? Until recently we did not have a special trainer on which a controller could train in flight control. Now such trainers are found almost everywhere, and classrooms for the training of flight control groups have been organized almost everywhere. All the persons in the group gained a good opportunity for training.

In practice this happens as follows. During the period of preliminary preparation, the controller in accord with the planning table gives the assignment to his assistants and to the persons who are part of his group and points out the nature of the pending flights. After studying the mission, practical training is carried out. They work on precise control of the flights, cooperation between the members of the group and the ability to help the crews in special situations. In the process of training the leader of the exercise can record, that is, temporarily halt the existing air situation, in order to analyze the actions of the members of the group at a certain moment. After completing the training, the readiness of the group is checked and a conclusion is drawn on allowing it to control the flights.

Flight safety is closely tied to flight planning. Probably everyone who has controlled aircraft traffic in the air would agree with me that the planning table sometimes is compiled in such a manner that the controller, in feeling responsible and in endeavoring not to make mistakes, works in a state of nervous strain.

This is why continuity, clarity and reliability of flight control should be fully provided for in drawing up the planning table. Without fail it is essential to consider the type of flight, the traffic in the air space and the providing of the aircraft with airfield servicing equipment. Without fail it is essential to determine the optimum load factor for the flight controller.

At flight controller courses we have spoken about the planning method which has been used in recent years in certain air clubs and have given it as the best example. Let us take up a portion of this involved in the actual drawing up of the planning table.

Proceeding from the nature and the duration of the planned flights, the deputy sub-unit commander draws up a model of the planning table. Here the air space is allocated in such a manner that one-half of the aircraft planned for the flights is constantly in it. Then the flight leaders at the time allocated for each flight put in the call numbers of the students. Appended to the planning table is a schedule for the assumed air space traffic. After the completion of the flights on the same schedule they mark the actual traffic and analyze the quality of flight control in accord with the table. As practice has shown, this planning method has proven fully effective but, unfortunately, it has been used far from everywhere.

Let us stop a moment at the analysis of potential air accidents as a basis of preventive work in working for flight safety. Any near miss has a negative effect upon the training conditions, it disturbs the moral and psychological mood of the collective and ultimately lowers the result of the flight training of the students and amateurs.

It is no secret that mistakes in the training of aviators, happen, as a rule, by their fault. Moreover, among a certain portion of the flight personnel there is even the erroneous opinion that it is difficult to make provision for all the "fine points" with heavy flight traffic.

Such a viewpoint does not stand up to criticism. There are no fine points in flight training. Any, even the "finest" neglect or laxness is a potential flight accident. And each aviator regardless of what position he holds, must constantly and strictly observe the flight rules. And if a potential accident has occurred, it is essential to profoundly and thoroughly analyze the reasons giving rise to it and outline practical measures to eliminate them.

In the struggle for flight safety a major role is played by objective monitoring which makes it possible most correctly to assess the actions of the pilot or the student in the air and the quality of piloting techniques and to detect the most characteristic deviations and errors made in one or another stage of the flight.

But it is wrong to assume that monitoring by itself will ensure flight safety. In order for it to be effective, it must be skillfully applied and its results efficiently used as is done by many of our pilot leaders, including those at the Lipetsk Air Club. When the instructor pilot A. Grigor'yev violated a flight mission, having decided to show off his skills which he had not yet achieved, this immediately became known, that is, immediately after the flight. The high velocity graph, having been carefully analyzed, helped disclose the lack of discipline by the pilot. Had there not been this efficiency and principledness, the case could have remained unnoticed and the infraction could not have become an object of thorough discussion in the collective.

Of course, such facts are a rare phenomenon. Nevertheless the reaction to them should be quick and just. This is an important aspect of prevention.

It is very important to instill in the aviators honesty and justness as inseparable qualities. What happened with one of our instructor pilots? He was carrying out a flight in a zone with a student. At altitude there was an unforeseen mishap but the pilot was not upset, he acted efficiently and landed safely back at his airfield. However he did not report to anyone about what had happened and the flight error was discovered only in analyzing the high-velocity graph by the senior chief.

Had the instructor not tried to cover up the potential accident, he would have merited the greatest possible commendation particularly as he had acted intelligently and boldly in the difficult air situation. However instead of praise his comrades and commanders strictly condemned him. And it must be said, rightly so. For another crew could have flown this aircraft after him.

What conclusions can be drawn from this case? In the first place, in the air club there was an underestimation of objective monitoring, an analysis of the decoding of the high-velocity graphs was done formally, haphazardly, and the pilot counted on this. Secondly, little work had been done to instill in the flight personnel honesty, ruthfulness and responsibility for the outcome of the flights. Undoubtedly with such shortcomings it would be difficult to organize work in preventing potential air accidents.

High exactingness in observing the established procedure and rules and profound analysis of the potential accidents should become a standard of conduct for each instructor and leader of instruction. The work carried out by them should have an anticipating and not a recording nature. What is required for this? First of all in all aviators there must be a higher feeling of duty and responsibility for the assigned job.

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DOSAAF AND MILITARY COMMISSARIATS

HARMFUL EFFECTS OF TOBACCO DESCRIBED

Moscow KRYL'YA RODINY in Russian No 5, May 81 (signed to press 13 Apr 81) p 27

[Article by G. Kobylanskiy, senior inspector physician from the Section of Medical Services under the USSR DOSAAF Central Committee: "To Smoke is to Harm Your Health!"]

[Text] ...A beginning amateur pilot S., in carrying out a training flight with an instructor along a route, began to feel bad, he turned pale, and sweating, nausea and vomiting appeared. The flight was halted. In analyzing the potential air accident, it turned out that in waiting for the flight to speed up time, the flyer had smoked three cigarettes.

The smoking of tobacco, as is known, harms the health of a person, it reduces work efficiency and shortens flight longevity.

With extended smoking, a person develops a resistance and addiction for nicotine. This, in turn, leads to an increase in the number of cigarettes smoked during a day and makes life for a smoker inconceivable without smoking from which he gains imaginary satisfaction. But for these "pleasant" moments a person must soon pay with his health. Experimentally it has been shown that after smoking, memory, attention and mental work efficiency deteriorate and these are so essential in the professional activities of a flyer. Extended smoking causes a major disruption in the cardiovascular system as pulse is accelerated and the most diverse changes in the heart muscle occur. One cigarette increases arterial pressure by 10 mm Hg. and this contributes to the development of hypertension and other illnesses.

Smoking accelerates the process of atherosclerosis and this ultimately creates conditions for an early myocardial infarction. The probability of the occurrence of an infarction in men over the age of 30 among smokers is 2-fold greater than among non-smokers. The main "gates" through which all the harmful components of tobacco smoke get into the organism are the human respiratory tracts and these are caused irreparable damage. The vital capacity of the lungs is reduced, the respiration function is disrupted and the frequent irritation of the respiratory tract by the tobacco smoke causes various inflammations such as tracheitis, bronchitis, inflammation of the lungs as well as gastritis, ulcers and lung cancer.

The Russian saying states: "To smoke is to harm your health." This should not be forgotten by anyone, particularly an amateur flyer. It is intolerable to smoke before flights, as this, as I have already emphasized, causes a negative effect on the work efficiency and leads to more rapid fatigue and has a negative effect on vision and hearing.

Let me give the following example: the amateur glider flyer, V., in flying at an altitude of 4,000 m without additional oxygen supply, felt his heart beating and weakness, and shortness of breath and dizziness appeared. After dropping to an altitude of 1,000 m, these phenomena disappeared. In a post-flight medical examination no indications of illness were discovered. However it was established that the flyer had smoked four cigarettes before the flight. Cigarette smoke contains from 0.5 to 5 percent carbon monoxide and this reduces the amount of hemoglobin in the blood. As a result at an altitude of 4,000 m, oxygen starvation or hypoxia appeared. Nicotine as a result of the direct effect on the vestibular apparatus, reduces a person's resistance to swaying motion during flights in turbulent airflows and contributes to the more rapid development of air sickness.

In weakening the overall physical condition of the human organism, smoking also reduces its capacity to resist acceleration in performing aerobatics figures. This is why, for instance, in the national aerobatics team this harmful habit has been outlawed and all the flyers on the team are nonsmokers.

The training of flight personnel and amateur flyers is a complicated and extended process requiring great expenditures of national money and property, and for this reason each pilot and amateur flyer should endeavor to utilize his flight activities as long and as fruitfully as possible in protecting and strengthening his health. One of the effective ways for achieving this aim is to combat tobacco smoking. The founder of our state V. I. Lenin called smoking "tobacco poison." He energetically argued against smoking and did not permit smoking at meetings.

The Communist Party and the Soviet government have shown constant concern for the health of the workers. In the series of all health protective measures carried out in the nation there is also the explaining to the broad masses of the population the harmful effect of smoking on the human organism. This work is also carried out in the DOSAAF organizations. However the propagandizing of health and hygiene knowledge about the harm of smoking primarily among the students and athletes is not done sufficiently and in a number of instances there is a formal approach.

We feel that a movement must be started to turn each DOSAAF aviation organization into a collective of nonsmokers. In the first stage we should limit and subsequently prohibit smoking in all service and work areas. Certainly those who do not smoke but are in a closed area along with smokers inhale up to 80 percent of the substances contained in the tobacco smoke and involuntarily become a victim of the "tobacco plague." In the youth glider schools and the young pilot and cosmonaut clubs where students of the general education schools basically study, smoking is completely unacceptable.

Great significance is being given to health educational work in propagandizing scientific knowledge about the harm of smoking. Its forms can be the most diverse including lectures, talks, health bulletins and the showing of films, slides and posters.

It must be remembered that the combating of tobacco smoking is a part of a large social program outlined by our party to protect the health of the Soviet man. It should become a concern of all the DOSAAF committees and clubs and each DOSAAF member.

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